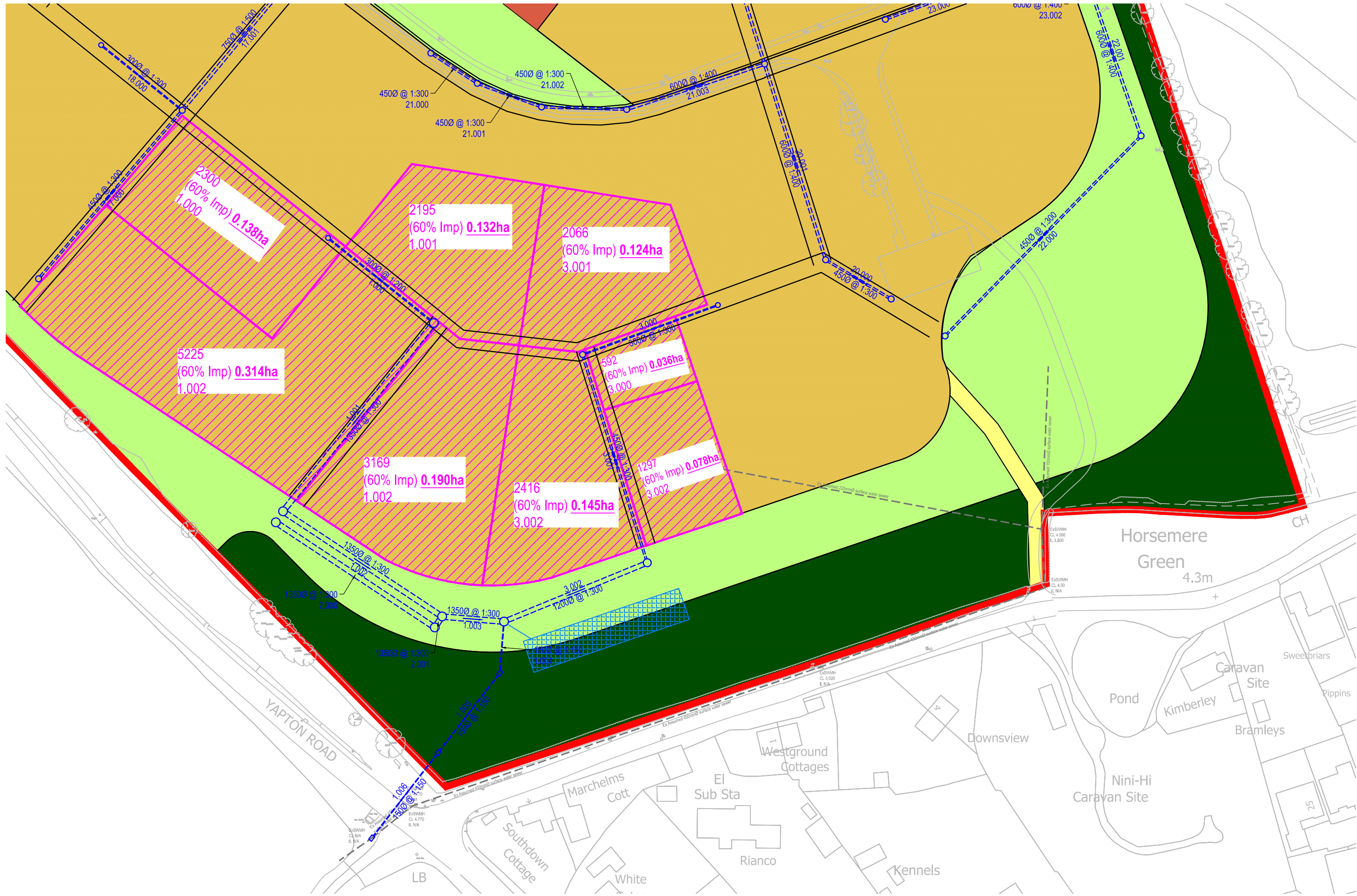
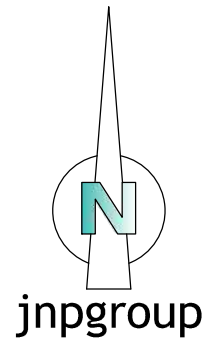




South East Catchment Impermeable Areas with 10% Urban Creep to Parcels			
Pipe No.	Parcels with 10% urban creep (m²)	Spine Road (ha)	Total (ha)
1.000	0.152	0.000	0.152
1.001	0.145	0.000	0.145
1.002	0.554	0.000	0.554
2.000	0.000	0.000	0.000
2.001	0.000	0.000	0.000
1.003	0.000	0.000	0.000
3.000	0.040	0.000	0.040
3.001	0.136	0.000	0.136
3.002	0.245	0.000	0.245
1.004	0.000	0.000	0.000
1.005	0.000	0.000	0.000
1.006	0.000	0.000	0.000
Overall Total =			1.272

- Notes:-
- Where this drawing has been issued in electronic .dwg format it has been done so in good faith. jnpgroup do not take any responsibility for any inaccuracies in the electronic data, which should be checked against the paper (or .pdf) drawing issue. Any apparent discrepancies should be immediately reported to jnpgroup. The electronic .dwg file should not be assumed to be to scale and should not be used for 'overlying', setting out or checking of any third party information. All dimensions should be taken from the paper (or .pdf) version of the drawing. Electronic drawings may contain third party information, jnpgroup take no responsibility for this information, which should be checked against the originators paper drawing(s).
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 - Any discrepancies between drawings of different scales, and between drawings and specification where appropriate to be notified to The Engineer for decision.
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Health and Safety Note:
The details on this drawing have been prepared on the assumption that a competent contractor will be carrying out the works. If the contractor(s) considers that there is insufficient Health and Safety information on this drawing, this should immediately be brought to the attention of the designer.

B	10.02.20	Surface water network 2 updated	IS	AM	
A	24.10.19	Land use plan updated	IS	AM	
Rev.	Date	Amendment	By	Chk.	

Status
Indicative



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Client	Wates Redrow
Job	Ford Airfield
Title	Surface Water Pipe Allocation Plan South East Parcels Surface Water Network 5

Scale 1:1000	@ A1	Date July 2019
Drawn by IS	Checked by	Approved by



Drawing No.	Rev.
C85228-D116	B

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 1 Northern Network	
Date 10/02/2020 13:48 File C85228 SW Network 1 Nor...	Designed by IS Checked by Amc	
Micro Drainage	Network 2018.1.1	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30

Pipe Sizes Standard Manhole Sizes STANDARD

FEH Rainfall Model	
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 500450 103100 TQ 00450 03100
Data Type	Catchment
Maximum Rainfall (mm/hr)	50
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	0.750
PIMP (%)	100
Add Flow / Climate Change (%)	40
Minimum Backdrop Height (m)	0.000
Maximum Backdrop Height (m)	0.000
Min Design Depth for Optimisation (m)	1.200
Min Vel for Auto Design only (m/s)	1.00
Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	1.262	4-8	11.096	8-12	7.727	12-16	0.549

Total Area Contributing (ha) = 20.634

Total Pipe Volume (m³) = 2698.136

Network Design Table for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
----	---------------	-------------	----------------	----------------	----------------	--------------------	-----------	-------------	-------------	--------------	----------------

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
----	-----------------	----------------	--------------	------------------	----------------------	---------------	-------------------	--------------	--------------	---------------

JNP Group										Page 2	
3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP					Ford Airfield System 1 Northern Network						
Date 10/02/2020 13:48 File C85228 SW Network 1 Nor...					Designed by IS Checked by Amc						
Micro Drainage					Network 2018.1.1						
Network Design Table for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30											
PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	93.537	0.312	300.0	0.687	5.00	0.0	0.600	o	600	Pipe/Conduit	
1.001	48.871	0.163	300.0	0.315	0.00	0.0	0.600	o	600	Pipe/Conduit	
1.002	67.936	0.226	300.0	0.000	0.00	0.0	0.600	o	750	Pipe/Conduit	
1.003	73.977	0.247	300.0	1.046	0.00	0.0	0.600	o	900	Pipe/Conduit	
2.000	83.435	0.417	200.0	0.212	5.00	0.0	0.600	o	450	Pipe/Conduit	
2.001	8.323	0.028	300.0	0.087	0.00	5.0	0.600	o	450	Pipe/Conduit	
2.002	66.554	0.222	300.0	0.201	0.00	0.0	0.600	o	450	Pipe/Conduit	
2.003	96.837	0.323	300.0	0.194	0.00	0.0	0.600	o	600	Pipe/Conduit	
1.004	83.219	0.277	300.0	0.273	0.00	0.0	0.600	o	900	Pipe/Conduit	
3.000	55.718	0.279	200.0	0.194	5.00	0.0	0.600	o	450	Pipe/Conduit	
3.001	27.957	0.140	200.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
3.002	57.474	0.192	300.0	0.262	0.00	0.0	0.600	o	600	Pipe/Conduit	
3.003	30.996	0.103	300.0	0.188	0.00	0.0	0.600	o	600	Pipe/Conduit	
4.000	59.383	0.297	200.0	0.251	5.00	0.0	0.600	o	450	Pipe/Conduit	
3.004	17.222	0.057	300.0	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit	
Network Results Table											
PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	
1.000	50.00	6.11	5.303	0.687	0.0	0.0	37.2	1.40	396.0	130.2	
1.001	50.00	6.69	4.991	1.002	0.0	0.0	54.3	1.40	396.0	190.0	
1.002	50.00	7.40	4.678	1.002	0.0	0.0	54.3	1.61	711.5	190.0	
1.003	50.00	8.08	4.302	2.048	0.0	0.0	110.9	1.80	1147.5	388.3	
2.000	50.00	5.97	5.495	0.212	0.0	0.0	11.5	1.43	228.1	40.2	
2.001	50.00	6.09	5.078	0.299	5.0	0.0	18.2	1.17	185.8	63.7	
2.002	50.00	7.04	5.050	0.500	5.0	0.0	29.1	1.17	185.8	101.8	
2.003	50.00	8.19	4.678	0.694	5.0	0.0	39.6	1.40	396.0	138.6	
1.004	50.00	8.96	4.055	3.015	5.0	0.0	165.3	1.80	1147.5	578.6	
3.000	50.00	5.65	5.318	0.194	0.0	0.0	10.5	1.43	228.1	36.8	
3.001	50.00	5.97	5.039	0.194	0.0	0.0	10.5	1.43	228.1	36.8	
3.002	50.00	6.66	4.749	0.456	0.0	0.0	24.7	1.40	396.0	86.4	
3.003	50.00	7.03	4.557	0.644	0.0	0.0	34.9	1.40	396.0	122.1	
4.000	50.00	5.69	4.901	0.251	0.0	0.0	13.6	1.43	228.1	47.6	
3.004	50.00	7.23	4.454	0.895	0.0	0.0	48.5	1.40	396.0	169.7	
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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP					Ford Airfield System 1 Northern Network						
Date 10/02/2020 13:48 File C85228 SW Network 1 Nor...					Designed by IS Checked by Amc						
Micro Drainage					Network 2018.1.1						
Network Design Table for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30											
PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
5.000	51.037	1.021	50.0	0.237	5.00	0.0	0.600	o	300	Pipe/Conduit	
3.005	95.552	0.319	300.0	0.118	0.00	0.0	0.600	o	600	Pipe/Conduit	
6.000	84.243	0.421	200.0	0.184	5.00	0.0	0.600	o	450	Pipe/Conduit	
1.005	49.398	0.165	300.0	0.691	0.00	0.0	0.600	o	1200	Pipe/Conduit	
1.006	55.876	0.238	235.0	0.421	0.00	0.0	0.600	o	1200	Pipe/Conduit	
1.007	33.340	0.142	235.0	0.142	0.00	0.0	0.600	o	1200	Pipe/Conduit	
1.008	103.033	0.206	500.0	0.000	0.00	0.0	0.600	o	1200	Pipe/Conduit	
1.009	19.047	0.038	500.0	0.606	0.00	0.0	0.600	o	1200	Pipe/Conduit	
7.000	54.020	0.540	100.0	0.185	5.00	0.0	0.600	o	300	Pipe/Conduit	
1.010	49.651	0.099	500.0	0.000	0.00	0.0	0.600	o	1200	Pipe/Conduit	
1.011	29.124	0.058	500.0	0.000	0.00	0.0	0.600	o	1200	Pipe/Conduit	
1.012	66.181	0.132	500.0	0.130	0.00	0.0	0.600	o	1200	Pipe/Conduit	
8.000	94.054	0.314	300.0	0.085	5.00	0.0	0.600	o	450	Pipe/Conduit	
8.001	119.819	0.399	300.0	0.106	0.00	0.0	0.600	o	750	Pipe/Conduit	
Network Results Table											
PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	
5.000	50.00	5.38	5.718	0.237	0.0	0.0	12.8	2.23	157.5	44.9	
3.005	50.00	8.37	4.397	1.250	0.0	0.0	67.7	1.40	396.0	237.0	
6.000	50.00	5.98	4.649	0.184	0.0	0.0	10.0	1.43	228.1	34.9	
1.005	50.00	9.34	3.478	5.140	5.0	0.0	280.4	2.15	2437.0	981.4	
1.006	50.00	9.72	3.313	5.561	5.0	0.0	303.2	2.44	2755.4	1061.2	
1.007	50.00	9.95	3.075	5.703	5.0	0.0	310.9	2.44	2755.4	1088.2	
1.008	50.00	10.98	2.933	5.703	5.0	0.0	310.9	1.67	1884.5	1088.2	
1.009	50.00	11.17	2.727	6.309	5.0	0.0	343.7	1.67	1884.5	1203.0	
7.000	50.00	5.57	4.129	0.185	0.0	0.0	10.0	1.57	111.1	35.1	
1.010	50.00	11.67	2.689	6.494	5.0	0.0	353.7	1.67	1884.5	1238.1	
1.011	50.00	11.96	2.590	6.494	5.0	0.0	353.7	1.67	1884.5	1238.1	
1.012	50.00	12.62	2.532	6.624	5.0	0.0	360.8	1.67	1884.5	1262.8	
8.000	50.00	6.34	5.487	0.085	0.0	0.0	4.6	1.17	185.8	16.1	
8.001	50.00	7.58	4.873	0.191	0.0	0.0	10.3	1.61	711.5	36.2	
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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP					Ford Airfield System 1 Northern Network						
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Micro Drainage					Network 2018.1.1						
Network Design Table for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30											
PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
9.000	50.699	0.253	200.0	0.251	5.00	0.0	0.600	o	450	Pipe/Conduit	
8.002	28.399	0.095	300.0	0.778	0.00	0.0	0.600	o	900	Pipe/Conduit	
10.000	91.723	0.306	300.0	0.117	5.00	0.0	0.600	o	450	Pipe/Conduit	
10.001	86.168	0.287	300.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
10.002	26.117	0.087	300.0	0.255	0.00	0.0	0.600	o	600	Pipe/Conduit	
11.000	44.325	0.887	50.0	0.140	5.00	0.0	0.600	o	450	Pipe/Conduit	
10.003	58.131	0.194	300.0	0.525	0.00	0.0	0.600	o	750	Pipe/Conduit	
8.003	77.728	0.259	300.0	0.000	0.00	0.0	0.600	o	900	Pipe/Conduit	
12.000	65.849	0.329	200.0	0.233	5.00	0.0	0.600	o	300	Pipe/Conduit	
8.004	24.055	0.080	300.0	0.433	0.00	0.0	0.600	o	900	Pipe/Conduit	
8.005	8.191	0.027	300.0	0.000	0.00	0.0	0.600	o	900	Pipe/Conduit	
13.000	80.242	0.802	100.0	0.067	5.00	0.0	0.600	o	450	Pipe/Conduit	
13.001	80.418	0.804	100.0	0.172	0.00	0.0	0.600	o	450	Pipe/Conduit	
Network Results Table											
PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	
9.000	50.00	5.59	5.027	0.251	0.0	0.0	13.6	1.43	228.1	47.6	
8.002	50.00	7.84	4.324	1.220	0.0	0.0	66.1	1.80	1147.5	231.3	
10.000	50.00	6.31	5.553	0.117	0.0	0.0	6.3	1.17	185.8	22.2	
10.001	50.00	7.54	5.247	0.117	0.0	0.0	6.3	1.17	185.8	22.2	
10.002	50.00	7.85	4.810	0.372	0.0	0.0	20.1	1.40	396.0	70.5	
11.000	50.00	5.26	5.759	0.140	0.0	0.0	7.6	2.88	458.1	26.5	
10.003	50.00	8.45	4.573	1.037	0.0	0.0	56.2	1.61	711.5	196.6	
8.003	50.00	9.17	4.229	2.257	0.0	0.0	122.3	1.80	1147.5	427.9	
12.000	50.00	5.99	4.899	0.233	0.0	0.0	12.6	1.11	78.3	44.2	
8.004	50.00	9.39	3.970	2.923	0.0	0.0	158.3	1.80	1147.5	554.1	
8.005	50.00	9.47	3.890	2.923	0.0	0.0	158.3	1.80	1147.5	554.1	
13.000	50.00	5.66	5.919	0.067	0.0	0.0	3.6	2.03	323.4	12.7	
13.001	50.00	6.32	5.117	0.239	0.0	0.0	12.9	2.03	323.4	45.3	
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Network Design Table for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30												
PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design	
8.006	67.902	0.226	300.0	0.267	0.00	0.0	0.600	o	900	Pipe/Conduit		
14.000	28.937	0.193	150.0	0.171	5.00	0.0	0.600	o	300	Pipe/Conduit		
14.001	62.150	0.414	150.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit		
15.000	62.150	0.311	200.0	0.319	5.00	0.0	0.600	o	450	Pipe/Conduit		
8.007	91.081	0.304	300.0	0.466	0.00	0.0	0.600	o	1200	Pipe/Conduit		
16.000	83.741	0.279	300.0	0.265	5.00	0.0	0.600	o	450	Pipe/Conduit		
16.001	113.115	0.377	300.0	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit		
17.000	40.403	0.404	100.0	0.069	5.00	0.0	0.600	o	300	Pipe/Conduit		
16.002	44.754	0.149	300.0	0.289	0.00	0.0	0.600	o	750	Pipe/Conduit		
18.000	48.995	0.490	100.0	0.307	5.00	0.0	0.600	o	300	Pipe/Conduit		
16.003	79.278	0.264	300.0	0.409	0.00	0.0	0.600	o	900	Pipe/Conduit		
Network Results Table												
PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)		
8.006	50.00	10.09	3.863	3.429	0.0	0.0	185.7	1.80	1147.5	650.1		
14.000	50.00	5.38	4.844	0.171	0.0	0.0	9.3	1.28	90.6	32.4		
14.001	50.00	6.18	4.651	0.171	0.0	0.0	9.3	1.28	90.6	32.4		
15.000	50.00	5.72	4.398	0.319	0.0	0.0	17.3	1.43	228.1	60.5		
8.007	50.00	10.80	3.337	4.385	0.0	0.0	237.5	2.15	2437.0	831.3		
16.000	50.00	6.19	5.586	0.265	0.0	0.0	14.4	1.17	185.8	50.2		
16.001	50.00	7.54	5.157	0.265	0.0	0.0	14.4	1.40	396.0	50.2		
17.000	50.00	5.43	5.484	0.069	0.0	0.0	3.7	1.57	111.1	13.1		
16.002	50.00	8.00	4.630	0.623	0.0	0.0	33.7	1.61	711.5	118.1		
18.000	50.00	5.52	5.421	0.307	0.0	0.0	16.6	1.57	111.1	58.2		
16.003	50.00	8.74	4.331	1.339	0.0	0.0	72.5	1.80	1147.5	253.8		
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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP					Ford Airfield System 1 Northern Network						
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Network Design Table for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30											
PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
19.000	48.001	0.480	100.0	0.243	5.00	0.0	0.600	o	300	Pipe/Conduit	
16.004	92.445	0.308	300.0	0.417	0.00	0.0	0.600	o	900	Pipe/Conduit	
16.005	66.569	0.222	300.0	0.400	0.00	0.0	0.600	o	900	Pipe/Conduit	
20.000	77.186	0.772	100.0	0.062	5.00	0.0	0.600	o	300	Pipe/Conduit	
16.006	61.152	0.204	300.0	0.170	0.00	0.0	0.600	o	900	Pipe/Conduit	
8.008	60.466	0.145	418.0	0.553	0.00	0.0	0.600	o	1200	Pipe/Conduit	
8.009	12.418	0.030	417.0	0.146	0.00	0.0	0.600	o	1350	Pipe/Conduit	
21.000	103.211	0.516	200.0	0.132	5.00	0.0	0.600	o	300	Pipe/Conduit	
21.001	35.354	0.118	300.0	0.138	0.00	0.0	0.600	o	450	Pipe/Conduit	
22.000	36.904	0.123	300.0	0.024	5.00	0.0	0.600	o	450	Pipe/Conduit	
22.001	83.039	0.166	500.0	0.305	0.00	0.0	0.600	o	900	Pipe/Conduit	
21.002	79.234	0.158	500.0	0.493	0.00	0.0	0.600	o	900	Pipe/Conduit	
23.000	45.450	0.909	50.0	0.046	5.00	0.0	0.600	o	300	Pipe/Conduit	
Network Results Table											
PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	
19.000	50.00	5.51	5.147	0.243	0.0	0.0	13.2	1.57	111.1	46.1	
16.004	50.00	9.59	4.067	1.999	0.0	0.0	108.3	1.80	1147.5	379.0	
16.005	50.00	10.21	3.759	2.399	0.0	0.0	129.9	1.80	1147.5	454.8	
20.000	50.00	5.82	4.909	0.062	0.0	0.0	3.4	1.57	111.1	11.8	
16.006	50.00	10.77	3.537	2.631	0.0	0.0	142.5	1.80	1147.5	498.8	
8.008	50.00	11.35	3.033	7.569	0.0	0.0	410.0	1.82	2062.4	1434.9	
8.009	50.00	11.46	2.738	7.715	0.0	0.0	417.9	1.96	2809.9	1462.6	
21.000	50.00	6.55	5.191	0.132	0.0	0.0	7.1	1.11	78.3	25.0	
21.001	50.00	7.06	4.525	0.270	0.0	0.0	14.6	1.17	185.8	51.2	
22.000	50.00	5.53	4.696	0.024	0.0	0.0	1.3	1.17	185.8	4.5	
22.001	50.00	6.52	4.123	0.329	0.0	0.0	17.8	1.39	887.1	62.4	
21.002	50.00	8.00	3.957	1.092	0.0	0.0	59.1	1.39	887.1	207.0	
23.000	50.00	5.34	5.308	0.046	0.0	0.0	2.5	2.23	157.5	8.7	
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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 1 Northern Network	
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Micro Drainage	Network 2018.1.1	

**Network Design Table for JNP Surface Water Network 1 - Northern Parcel REV
D 2020.01.30**

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
21.003	28.995	0.058	500.0	0.230	0.00	0.0	0.600	o	900	Pipe/Conduit	
24.000	77.867	0.260	300.0	0.045	5.00	0.0	0.600	o	300	Pipe/Conduit	
24.001	40.176	0.134	300.0	0.041	0.00	0.0	0.600	o	450	Pipe/Conduit	
24.002	31.074	0.104	300.0	0.221	0.00	0.0	0.600	o	450	Pipe/Conduit	
21.004	26.563	0.053	500.0	0.202	0.00	0.0	0.600	o	900	Pipe/Conduit	
21.005	91.765	0.184	500.0	0.000	0.00	0.0	0.600	o	1200	Pipe/Conduit	
25.000	98.750	0.988	100.0	0.073	5.00	0.0	0.600	o	300	Pipe/Conduit	
26.000	56.000	0.700	80.0	0.046	5.00	0.0	0.600	o	300	Pipe/Conduit	
21.006	69.097	0.138	500.0	0.979	0.00	0.0	0.600	o	1200	Pipe/Conduit	
21.007	33.907	0.068	500.0	0.139	0.00	0.0	0.600	o	1200	Pipe/Conduit	
27.000	61.421	0.409	150.0	0.073	5.00	0.0	0.600	o	300	Pipe/Conduit	
27.001	20.056	0.100	200.0	0.223	0.00	0.0	0.600	o	600	Pipe/Conduit	
21.008	69.976	0.140	500.0	0.307	0.00	0.0	0.600	o	1200	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
21.003	50.00	8.35	3.799	1.368	0.0	0.0	74.1	1.39	887.1	259.3
24.000	50.00	6.44	4.839	0.045	0.0	0.0	2.4	0.90	63.8	8.5
24.001	50.00	7.01	4.429	0.086	0.0	0.0	4.7	1.17	185.8	16.3
24.002	50.00	7.45	4.295	0.307	0.0	0.0	16.6	1.17	185.8	58.2
21.004	50.00	8.67	3.741	1.877	0.0	0.0	101.7	1.39	887.1	355.8
21.005	50.00	9.59	3.388	1.877	0.0	0.0	101.7	1.67	1884.5	355.8
25.000	50.00	6.05	5.091	0.073	0.0	0.0	4.0	1.57	111.1	13.8
26.000	50.00	5.53	4.804	0.046	0.0	0.0	2.5	1.76	124.4	8.7
21.006	50.00	10.28	3.204	2.975	0.0	0.0	161.1	1.67	1884.5	564.0
21.007	50.00	10.62	3.066	3.114	0.0	0.0	168.7	1.67	1884.5	590.3
27.000	50.00	5.80	4.407	0.073	0.0	0.0	4.0	1.28	90.6	13.8
27.001	50.00	5.99	3.698	0.296	0.0	0.0	16.0	1.72	485.8	56.1
21.008	50.00	11.32	2.998	3.717	0.0	0.0	201.3	1.67	1884.5	704.7

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Micro Drainage					Network 2018.1.1						
Network Design Table for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30											
PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
8.010	70.511	0.141	500.0	0.537	0.00	0.0	0.600	o	1350	Pipe/Conduit	
8.011	83.437	0.167	500.0	0.745	0.00	0.0	0.600	o	1350	Pipe/Conduit	
28.000	47.620	0.095	500.0	1.296	5.00	0.0	0.600	o	900	Pipe/Conduit	
28.001	134.958	0.270	500.0	0.000	0.00	0.0	0.600	o	900	Pipe/Conduit	
28.002	168.351	0.337	500.0	0.000	0.00	0.0	0.600	o	900	Pipe/Conduit	
1.013	134.146	0.671	200.0	0.000	0.00	0.0	0.600	o	1350	Pipe/Conduit	
1.014	15.058	0.100	150.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
Network Results Table											
PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	
8.010	50.00	12.11	2.708	11.969		0.0	0.0	648.3	1.79	2269.1	
8.011	50.00	12.89	2.567	12.714		0.0	0.0	688.7	1.79	2410.3	
28.000	50.00	5.57	3.102	1.296		0.0	0.0	70.2	1.39	245.7	
28.001	50.00	7.18	3.007	1.296		0.0	0.0	70.2	1.39	245.7	
28.002	50.00	9.19	2.737	1.296		0.0	0.0	70.2	1.39	245.7	
1.013	50.00	13.68	2.400	20.634		5.0	0.0	1119.6	2.84	3918.7	
1.014	50.00	13.91	1.729	20.634		5.0	0.0	1119.6	1.07	42.4« 3918.7	
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Micro Drainage				Network 2018.1.1							
Manhole Schedules for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30											
MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	
100	7.879	2.576	Open Manhole	1500	1.000	5.303	600				
101	7.853	2.862	Open Manhole	1500	1.001	4.991	600	1.000	4.991	600	
102	7.712	3.034	Open Manhole	1800	1.002	4.678	750	1.001	4.828	600	
103	7.466	3.164	Open Manhole	1800	1.003	4.302	900	1.002	4.452	750	
105	7.960	2.465	Open Manhole	1500	2.000	5.495	450				
106	6.998	1.920	Open Manhole	1500	2.001	5.078	450	2.000	5.078	450	
107	6.996	1.946	Open Manhole	1500	2.002	5.050	450	2.001	5.050	450	
108	7.904	3.226	Open Manhole	1500	2.003	4.678	600	2.002	4.828	450	
104	7.504	3.449	Open Manhole	1800	1.004	4.055	900	1.003	4.055	900	
								2.003	4.355	600	
110	7.150	1.832	Open Manhole	1500	3.000	5.318	450				
111	7.914	2.875	Open Manhole	1500	3.001	5.039	450	3.000	5.039	450	
112	7.854	3.105	Open Manhole	1500	3.002	4.749	600	3.001	4.899	450	
113	7.752	3.195	Open Manhole	1500	3.003	4.557	600	3.002	4.557	600	
115	7.168	2.267	Open Manhole	1500	4.000	4.901	450				
114	7.976	3.522	Open Manhole	1500	3.004	4.454	600	3.003	4.454	600	
								4.000	4.604	450	
117	8.209	2.491	Open Manhole	1200	5.000	5.718	300				
116	7.780	3.383	Open Manhole	1500	3.005	4.397	600	3.004	4.397	600	
								5.000	4.697	300	
118	6.680	2.031	Open Manhole	1500	6.000	4.649	450				
109	7.136	3.658	Open Manhole	2100	1.005	3.478	1200	1.004	3.778	900	
								3.005	4.078	600	
								6.000	4.228	450	
119	7.002	3.689	Open Manhole	2100	1.006	3.313	1200	1.005	3.313	1200	
120	6.800	3.725	Open Manhole	2100	1.007	3.075	1200	1.006	3.075	1200	
121	6.774	3.841	Open Manhole	2100	1.008	2.933	1200	1.007	2.933	1200	
122	6.496	3.769	Open Manhole	2100	1.009	2.727	1200	1.008	2.727	1200	
124	6.295	2.166	Open Manhole	1200	7.000	4.129	300				
123	6.383	3.694	Open Manhole	2100	1.010	2.689	1200	1.009	2.689	1200	
								7.000	3.589	300	
125	5.543	2.953	Open Manhole	2100	1.011	2.590	1200	1.010	2.590	1200	
126	5.793	3.261	Open Manhole	2100	1.012	2.532	1200	1.011	2.532	1200	
128	7.032	1.545	Open Manhole	1500	8.000	5.487	450				
129	6.742	1.869	Open Manhole	1800	8.001	4.873	750	8.000	5.173	450	
131	7.231	2.204	Open Manhole	1500	9.000	5.027	450				
130	7.890	3.566	Open Manhole	1800	8.002	4.324	900	8.001	4.474	750	
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Micro Drainage				Network 2018.1.1							
Manhole Schedules for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30											
MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
133	7.102	1.549	Open Manhole	1500	10.000	5.553	450	9.000	4.774	450	
134	7.336	2.089	Open Manhole	1500	10.001	5.247	450	10.000	5.247	450	
135	7.776	2.966	Open Manhole	1500	10.002	4.810	600	10.001	4.960	450	
137	8.038	2.279	Open Manhole	1500	11.000	5.759	450				
136	8.236	3.663	Open Manhole	1800	10.003	4.573	750	10.002	4.723	600	
								11.000	4.873	450	
132	8.259	4.030	Open Manhole	1800	8.003	4.229	900	8.002	4.229	900	
								10.003	4.379	750	
139	7.239	2.340	Open Manhole	1200	12.000	4.899	300				
138	6.719	2.749	Open Manhole	1800	8.004	3.970	900	8.003	3.970	900	
								12.000	4.570	300	
140	6.904	3.014	Open Manhole	1800	8.005	3.890	900	8.004	3.890	900	
142	8.169	2.250	Open Manhole	1500	13.000	5.919	450				
143	7.129	2.012	Open Manhole	1500	13.001	5.117	450	13.000	5.117	450	
141	7.005	3.142	Open Manhole	1800	8.006	3.863	900	8.005	3.863	900	
								13.001	4.313	450	
145	7.362	2.518	Open Manhole	1200	14.000	4.844	300				
146	7.391	2.740	Open Manhole	1200	14.001	4.651	300	14.000	4.651	300	
147	6.922	2.524	Open Manhole	1500	15.000	4.398	450				
144	6.850	3.513	Open Manhole	2100	8.007	3.337	1200	8.006	3.637	900	
								14.001	4.237	300	
								15.000	4.087	450	
149	7.409	1.823	Open Manhole	1500	16.000	5.586	450				
150	7.455	2.298	Open Manhole	1500	16.001	5.157	600	16.000	5.307	450	
152	8.130	2.646	Open Manhole	1200	17.000	5.484	300				
151	7.598	2.968	Open Manhole	1800	16.002	4.630	750	16.001	4.780	600	
								17.000	5.080	300	
154	7.952	2.531	Open Manhole	1200	18.000	5.421	300				
153	8.156	3.825	Open Manhole	1800	16.003	4.331	900	16.002	4.481	750	
								18.000	4.931	300	
156	7.092	1.945	Open Manhole	1200	19.000	5.147	300				
155	7.920	3.853	Open Manhole	1800	16.004	4.067	900	16.003	4.067	900	
								19.000	4.667	300	
157	7.288	3.529	Open Manhole	1800	16.005	3.759	900	16.004	3.759	900	
159	7.158	2.249	Open Manhole	1200	20.000	4.909	300				
158	7.044	3.507	Open Manhole	1800	16.006	3.537	900	16.005	3.537	900	
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Manhole Schedules for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30											
MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
148	6.246	3.213	Open Manhole	2100	8.008	3.033	1200	20.000	4.137	300	
								8.007	3.033	1200	
								16.006	3.333	900	
160	6.010	3.272	Open Manhole	2400	8.009	2.738	1350	8.008	2.888	1200	
162	7.637	2.446	Open Manhole	1200	21.000	5.191	300				
163	8.251	3.726	Open Manhole	1500	21.001	4.525	450	21.000	4.675	300	
165a	6.150	1.454	Open Manhole	1500	22.000	4.696	450				
165	6.400	2.277	Open Manhole	1800	22.001	4.123	900	22.000	4.573	450	
164	7.563	3.606	Open Manhole	1800	21.002	3.957	900	21.001	4.407	450	
								22.001	3.957	900	
167	7.977	2.669	Open Manhole	1200	23.000	5.308	300				
166	7.804	4.005	Open Manhole	1800	21.003	3.799	900	21.002	3.799	900	
								23.000	4.399	300	
169a	6.200	1.361	Open Manhole	1200	24.000	4.839	300				
169	7.271	2.842	Open Manhole	1500	24.001	4.429	450	24.000	4.579	300	
170	7.281	2.986	Open Manhole	1500	24.002	4.295	450	24.001	4.295	450	
168	7.704	3.963	Open Manhole	1800	21.004	3.741	900	21.003	3.741	900	
								24.002	4.191	450	
171	7.372	3.984	Open Manhole	2100	21.005	3.388	1200	21.004	3.688	900	
173	6.715	1.624	Open Manhole	1200	25.000	5.091	300				
174	7.027	2.223	Open Manhole	1200	26.000	4.804	300				
172	6.984	3.780	Open Manhole	2100	21.006	3.204	1200	21.005	3.204	1200	
								25.000	4.104	300	
								26.000	4.104	300	
175	6.673	3.607	Open Manhole	2100	21.007	3.066	1200	21.006	3.066	1200	
177	6.048	1.641	Open Manhole	1200	27.000	4.407	300				
178	6.190	2.492	Open Manhole	1500	27.001	3.698	600	27.000	3.998	300	
176	6.297	3.299	Open Manhole	2100	21.008	2.998	1200	21.007	2.998	1200	
								27.001	3.598	600	
161	5.866	3.158	Open Manhole	2400	8.010	2.708	1350	8.009	2.708	1350	
								21.008	2.858	1200	
179	5.344	2.777	Open Manhole	2400	8.011	2.567	1350	8.010	2.567	1350	
180	6.387	3.285	Open Manhole	1800	28.000	3.102	900				
181	6.675	3.668	Open Manhole	1800	28.001	3.007	900	28.000	3.007	900	
182	7.069	4.332	Open Manhole	1800	28.002	2.737	900	28.001	2.737	900	
127	5.000	2.600	Open Manhole	3000	1.013	2.400	1350	1.012	2.400	1200	
								8.011	2.400	1350	
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Manhole Schedules for JNP Surface Water Network 1 - Northern Parcel REV D
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MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
183	4.700	2.971	Open Manhole	3000	1.014	1.729	225	28.002	2.400	900	
184	4.933	3.304	Open Manhole	3000		OUTFALL		1.013	1.729	1350	
								1.014	1.629	225	

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Micro Drainage	Network 2018.1.1	

PIPELINE SCHEDULES for JNP Surface Water Network 1 - Northern Parcel REV D
2020.01.30

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	600	100	7.879	5.303	1.976	Open Manhole	1500
1.001	o	600	101	7.853	4.991	2.262	Open Manhole	1500
1.002	o	750	102	7.712	4.678	2.284	Open Manhole	1800
1.003	o	900	103	7.466	4.302	2.264	Open Manhole	1800
2.000	o	450	105	7.960	5.495	2.015	Open Manhole	1500
2.001	o	450	106	6.998	5.078	1.470	Open Manhole	1500
2.002	o	450	107	6.996	5.050	1.496	Open Manhole	1500
2.003	o	600	108	7.904	4.678	2.626	Open Manhole	1500
1.004	o	900	104	7.504	4.055	2.549	Open Manhole	1800
3.000	o	450	110	7.150	5.318	1.382	Open Manhole	1500
3.001	o	450	111	7.914	5.039	2.425	Open Manhole	1500
3.002	o	600	112	7.854	4.749	2.505	Open Manhole	1500
3.003	o	600	113	7.752	4.557	2.595	Open Manhole	1500
4.000	o	450	115	7.168	4.901	1.817	Open Manhole	1500
3.004	o	600	114	7.976	4.454	2.922	Open Manhole	1500

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	93.537	300.0	101	7.853	4.991	2.262	Open Manhole	1500
1.001	48.871	300.0	102	7.712	4.828	2.284	Open Manhole	1800
1.002	67.936	300.0	103	7.466	4.452	2.264	Open Manhole	1800
1.003	73.977	300.0	104	7.504	4.055	2.549	Open Manhole	1800
2.000	83.435	200.0	106	6.998	5.078	1.470	Open Manhole	1500
2.001	8.323	300.0	107	6.996	5.050	1.496	Open Manhole	1500
2.002	66.554	300.0	108	7.904	4.828	2.626	Open Manhole	1500
2.003	96.837	300.0	104	7.504	4.355	2.549	Open Manhole	1800
1.004	83.219	300.0	109	7.136	3.778	2.458	Open Manhole	2100
3.000	55.718	200.0	111	7.914	5.039	2.425	Open Manhole	1500
3.001	27.957	200.0	112	7.854	4.899	2.505	Open Manhole	1500
3.002	57.474	300.0	113	7.752	4.557	2.595	Open Manhole	1500
3.003	30.996	300.0	114	7.976	4.454	2.922	Open Manhole	1500
4.000	59.383	200.0	114	7.976	4.604	2.922	Open Manhole	1500
3.004	17.222	300.0	116	7.780	4.397	2.783	Open Manhole	1500

JNP Group								Page 14	
3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP				Ford Airfield System 1 Northern Network					
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Micro Drainage				Network 2018.1.1					
PIPELINE SCHEDULES for JNP Surface Water Network 1 - Northern Parcel REV D									
2020.01.30									
Upstream Manhole									
PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)	
5.000	o	300	117	8.209	5.718	2.191	Open Manhole	1200	
3.005	o	600	116	7.780	4.397	2.783	Open Manhole	1500	
6.000	o	450	118	6.680	4.649	1.581	Open Manhole	1500	
1.005	o	1200	109	7.136	3.478	2.458	Open Manhole	2100	
1.006	o	1200	119	7.002	3.313	2.489	Open Manhole	2100	
1.007	o	1200	120	6.800	3.075	2.525	Open Manhole	2100	
1.008	o	1200	121	6.774	2.933	2.641	Open Manhole	2100	
1.009	o	1200	122	6.496	2.727	2.569	Open Manhole	2100	
7.000	o	300	124	6.295	4.129	1.866	Open Manhole	1200	
1.010	o	1200	123	6.383	2.689	2.494	Open Manhole	2100	
1.011	o	1200	125	5.543	2.590	1.753	Open Manhole	2100	
1.012	o	1200	126	5.793	2.532	2.061	Open Manhole	2100	
8.000	o	450	128	7.032	5.487	1.095	Open Manhole	1500	
Downstream Manhole									
PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)	
5.000	51.037	50.0	116	7.780	4.697	2.783	Open Manhole	1500	
3.005	95.552	300.0	109	7.136	4.078	2.458	Open Manhole	2100	
6.000	84.243	200.0	109	7.136	4.228	2.458	Open Manhole	2100	
1.005	49.398	300.0	119	7.002	3.313	2.489	Open Manhole	2100	
1.006	55.876	235.0	120	6.800	3.075	2.525	Open Manhole	2100	
1.007	33.340	235.0	121	6.774	2.933	2.641	Open Manhole	2100	
1.008	103.033	500.0	122	6.496	2.727	2.569	Open Manhole	2100	
1.009	19.047	500.0	123	6.383	2.689	2.494	Open Manhole	2100	
7.000	54.020	100.0	123	6.383	3.589	2.494	Open Manhole	2100	
1.010	49.651	500.0	125	5.543	2.590	1.753	Open Manhole	2100	
1.011	29.124	500.0	126	5.793	2.532	2.061	Open Manhole	2100	
1.012	66.181	500.0	127	5.000	2.400	1.400	Open Manhole	3000	
8.000	94.054	300.0	129	6.742	5.173	1.119	Open Manhole	1800	
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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 1 Northern Network
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Micro Drainage	Network 2018.1.1



PIPELINE SCHEDULES for JNP Surface Water Network 1 - Northern Parcel REV D
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Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
8.001	o	750	129	6.742	4.873	1.119	Open Manhole	1800
9.000	o	450	131	7.231	5.027	1.754	Open Manhole	1500
8.002	o	900	130	7.890	4.324	2.666	Open Manhole	1800
10.000	o	450	133	7.102	5.553	1.099	Open Manhole	1500
10.001	o	450	134	7.336	5.247	1.639	Open Manhole	1500
10.002	o	600	135	7.776	4.810	2.366	Open Manhole	1500
11.000	o	450	137	8.038	5.759	1.829	Open Manhole	1500
10.003	o	750	136	8.236	4.573	2.913	Open Manhole	1800
8.003	o	900	132	8.259	4.229	3.130	Open Manhole	1800
12.000	o	300	139	7.239	4.899	2.040	Open Manhole	1200
8.004	o	900	138	6.719	3.970	1.849	Open Manhole	1800
8.005	o	900	140	6.904	3.890	2.114	Open Manhole	1800

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
8.001	119.819	300.0	130	7.890	4.474	2.666	Open Manhole	1800
9.000	50.699	200.0	130	7.890	4.774	2.666	Open Manhole	1800
8.002	28.399	300.0	132	8.259	4.229	3.130	Open Manhole	1800
10.000	91.723	300.0	134	7.336	5.247	1.639	Open Manhole	1500
10.001	86.168	300.0	135	7.776	4.960	2.366	Open Manhole	1500
10.002	26.117	300.0	136	8.236	4.723	2.913	Open Manhole	1800
11.000	44.325	50.0	136	8.236	4.873	2.914	Open Manhole	1800
10.003	58.131	300.0	132	8.259	4.379	3.130	Open Manhole	1800
8.003	77.728	300.0	138	6.719	3.970	1.849	Open Manhole	1800
12.000	65.849	200.0	138	6.719	4.570	1.849	Open Manhole	1800
8.004	24.055	300.0	140	6.904	3.890	2.114	Open Manhole	1800
8.005	8.191	300.0	141	7.005	3.863	2.242	Open Manhole	1800

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Micro Drainage				Network 2018.1.1					
PIPELINE SCHEDULES for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30									
Upstream Manhole									
PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)	
13.000	o	450	142	8.169	5.919	1.800	Open Manhole	1500	
13.001	o	450	143	7.129	5.117	1.562	Open Manhole	1500	
8.006	o	900	141	7.005	3.863	2.242	Open Manhole	1800	
14.000	o	300	145	7.362	4.844	2.218	Open Manhole	1200	
14.001	o	300	146	7.391	4.651	2.440	Open Manhole	1200	
15.000	o	450	147	6.922	4.398	2.074	Open Manhole	1500	
8.007	o	1200	144	6.850	3.337	2.313	Open Manhole	2100	
16.000	o	450	149	7.409	5.586	1.373	Open Manhole	1500	
16.001	o	600	150	7.455	5.157	1.698	Open Manhole	1500	
17.000	o	300	152	8.130	5.484	2.346	Open Manhole	1200	
16.002	o	750	151	7.598	4.630	2.218	Open Manhole	1800	
Downstream Manhole									
PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)	
13.000	80.242	100.0	143	7.129	5.117	1.562	Open Manhole	1500	
13.001	80.418	100.0	141	7.005	4.313	2.242	Open Manhole	1800	
8.006	67.902	300.0	144	6.850	3.637	2.313	Open Manhole	2100	
14.000	28.937	150.0	146	7.391	4.651	2.440	Open Manhole	1200	
14.001	62.150	150.0	144	6.850	4.237	2.313	Open Manhole	2100	
15.000	62.150	200.0	144	6.850	4.087	2.313	Open Manhole	2100	
8.007	91.081	300.0	148	6.246	3.033	2.013	Open Manhole	2100	
16.000	83.741	300.0	150	7.455	5.307	1.698	Open Manhole	1500	
16.001	113.115	300.0	151	7.598	4.780	2.218	Open Manhole	1800	
17.000	40.403	100.0	151	7.598	5.080	2.218	Open Manhole	1800	
16.002	44.754	300.0	153	8.156	4.481	2.925	Open Manhole	1800	
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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 1 Northern Network	
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Micro Drainage	Network 2018.1.1	

PIPELINE SCHEDULES for JNP Surface Water Network 1 - Northern Parcel REV D
2020.01.30

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
18.000	o	300	154	7.952	5.421	2.231	Open Manhole	1200
16.003	o	900	153	8.156	4.331	2.925	Open Manhole	1800
19.000	o	300	156	7.092	5.147	1.645	Open Manhole	1200
16.004	o	900	155	7.920	4.067	2.953	Open Manhole	1800
16.005	o	900	157	7.288	3.759	2.629	Open Manhole	1800
20.000	o	300	159	7.158	4.909	1.949	Open Manhole	1200
16.006	o	900	158	7.044	3.537	2.607	Open Manhole	1800
8.008	o	1200	148	6.246	3.033	2.013	Open Manhole	2100
8.009	o	1350	160	6.010	2.738	1.922	Open Manhole	2400
21.000	o	300	162	7.637	5.191	2.146	Open Manhole	1200
21.001	o	450	163	8.251	4.525	3.276	Open Manhole	1500
22.000	o	450	165a	6.150	4.696	1.004	Open Manhole	1500

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
18.000	48.995	100.0	153	8.156	4.931	2.925	Open Manhole	1800
16.003	79.278	300.0	155	7.920	4.067	2.953	Open Manhole	1800
19.000	48.001	100.0	155	7.920	4.667	2.953	Open Manhole	1800
16.004	92.445	300.0	157	7.288	3.759	2.629	Open Manhole	1800
16.005	66.569	300.0	158	7.044	3.537	2.607	Open Manhole	1800
20.000	77.186	100.0	158	7.044	4.137	2.607	Open Manhole	1800
16.006	61.152	300.0	148	6.246	3.333	2.013	Open Manhole	2100
8.008	60.466	418.0	160	6.010	2.888	1.922	Open Manhole	2400
8.009	12.418	417.0	161	5.866	2.708	1.808	Open Manhole	2400
21.000	103.211	200.0	163	8.251	4.675	3.276	Open Manhole	1500
21.001	35.354	300.0	164	7.563	4.407	2.706	Open Manhole	1800
22.000	36.904	300.0	165	6.400	4.573	1.377	Open Manhole	1800

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 1 Northern Network	
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Micro Drainage	Network 2018.1.1	

PIPELINE SCHEDULES for JNP Surface Water Network 1 - Northern Parcel REV D
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Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
22.001	o	900	165	6.400	4.123	1.377	Open Manhole	1800
21.002	o	900	164	7.563	3.957	2.706	Open Manhole	1800
23.000	o	300	167	7.977	5.308	2.369	Open Manhole	1200
21.003	o	900	166	7.804	3.799	3.105	Open Manhole	1800
24.000	o	300	169a	6.200	4.839	1.061	Open Manhole	1200
24.001	o	450	169	7.271	4.429	2.392	Open Manhole	1500
24.002	o	450	170	7.281	4.295	2.536	Open Manhole	1500
21.004	o	900	168	7.704	3.741	3.063	Open Manhole	1800
21.005	o	1200	171	7.372	3.388	2.784	Open Manhole	2100
25.000	o	300	173	6.715	5.091	1.324	Open Manhole	1200
26.000	o	300	174	7.027	4.804	1.923	Open Manhole	1200
21.006	o	1200	172	6.984	3.204	2.580	Open Manhole	2100

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
22.001	83.039	500.0	164	7.563	3.957	2.706	Open Manhole	1800
21.002	79.234	500.0	166	7.804	3.799	3.105	Open Manhole	1800
23.000	45.450	50.0	166	7.804	4.399	3.105	Open Manhole	1800
21.003	28.995	500.0	168	7.704	3.741	3.063	Open Manhole	1800
24.000	77.867	300.0	169	7.271	4.579	2.392	Open Manhole	1500
24.001	40.176	300.0	170	7.281	4.295	2.536	Open Manhole	1500
24.002	31.074	300.0	168	7.704	4.191	3.063	Open Manhole	1800
21.004	26.563	500.0	171	7.372	3.688	2.784	Open Manhole	2100
21.005	91.765	500.0	172	6.984	3.204	2.580	Open Manhole	2100
25.000	98.750	100.0	172	6.984	4.104	2.581	Open Manhole	2100
26.000	56.000	80.0	172	6.984	4.104	2.580	Open Manhole	2100
21.006	69.097	500.0	175	6.673	3.066	2.407	Open Manhole	2100

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 1 Northern Network	
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**PIPELINE SCHEDULES for JNP Surface Water Network 1 - Northern Parcel REV D
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Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
21.007	o	1200	175	6.673	3.066	2.407	Open Manhole	2100
27.000	o	300	177	6.048	4.407	1.341	Open Manhole	1200
27.001	o	600	178	6.190	3.698	1.892	Open Manhole	1500
21.008	o	1200	176	6.297	2.998	2.099	Open Manhole	2100
8.010	o	1350	161	5.866	2.708	1.808	Open Manhole	2400
8.011	o	1350	179	5.344	2.567	1.427	Open Manhole	2400
28.000	o	900	180	6.387	3.102	2.385	Open Manhole	1800
28.001	o	900	181	6.675	3.007	2.768	Open Manhole	1800
28.002	o	900	182	7.069	2.737	3.432	Open Manhole	1800
1.013	o	1350	127	5.000	2.400	1.250	Open Manhole	3000
1.014	o	225	183	4.700	1.729	2.746	Open Manhole	3000

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
21.007	33.907	500.0	176	6.297	2.998	2.099	Open Manhole	2100
27.000	61.421	150.0	178	6.190	3.998	1.892	Open Manhole	1500
27.001	20.056	200.0	176	6.297	3.598	2.099	Open Manhole	2100
21.008	69.976	500.0	161	5.866	2.858	1.808	Open Manhole	2400
8.010	70.511	500.0	179	5.344	2.567	1.427	Open Manhole	2400
8.011	83.437	500.0	127	5.000	2.400	1.250	Open Manhole	3000
28.000	47.620	500.0	181	6.675	3.007	2.768	Open Manhole	1800
28.001	134.958	500.0	182	7.069	2.737	3.432	Open Manhole	1800
28.002	168.351	500.0	127	5.000	2.400	1.700	Open Manhole	3000
1.013	134.146	200.0	183	4.700	1.729	1.621	Open Manhole	3000
1.014	15.058	150.0	184	4.933	1.629	3.079	Open Manhole	3000

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Micro Drainage			Network 2018.1.1			
Area Summary for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30						
Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.687	0.687	0.687
1.001	-	-	100	0.315	0.315	0.315
1.002	-	-	100	0.000	0.000	0.000
1.003	-	-	100	1.046	1.046	1.046
2.000	-	-	100	0.212	0.212	0.212
2.001	-	-	100	0.087	0.087	0.087
2.002	-	-	100	0.201	0.201	0.201
2.003	-	-	100	0.194	0.194	0.194
1.004	-	-	100	0.273	0.273	0.273
3.000	-	-	100	0.194	0.194	0.194
3.001	-	-	100	0.000	0.000	0.000
3.002	-	-	100	0.262	0.262	0.262
3.003	-	-	100	0.188	0.188	0.188
4.000	-	-	100	0.251	0.251	0.251
3.004	-	-	100	0.000	0.000	0.000
5.000	-	-	100	0.237	0.237	0.237
3.005	-	-	100	0.118	0.118	0.118
6.000	-	-	100	0.184	0.184	0.184
1.005	-	-	100	0.691	0.691	0.691
1.006	-	-	100	0.421	0.421	0.421
1.007	-	-	100	0.142	0.142	0.142
1.008	-	-	100	0.000	0.000	0.000
1.009	-	-	100	0.606	0.606	0.606
7.000	-	-	100	0.185	0.185	0.185
1.010	-	-	100	0.000	0.000	0.000
1.011	-	-	100	0.000	0.000	0.000
1.012	-	-	100	0.130	0.130	0.130
8.000	-	-	100	0.085	0.085	0.085
8.001	-	-	100	0.106	0.106	0.106
9.000	-	-	100	0.251	0.251	0.251
8.002	-	-	100	0.778	0.778	0.778
10.000	-	-	100	0.117	0.117	0.117
10.001	-	-	100	0.000	0.000	0.000
10.002	-	-	100	0.255	0.255	0.255
11.000	-	-	100	0.140	0.140	0.140
10.003	-	-	100	0.525	0.525	0.525
8.003	-	-	100	0.000	0.000	0.000
12.000	-	-	100	0.233	0.233	0.233
8.004	-	-	100	0.433	0.433	0.433
8.005	-	-	100	0.000	0.000	0.000
13.000	-	-	100	0.067	0.067	0.067
13.001	-	-	100	0.172	0.172	0.172
8.006	-	-	100	0.267	0.267	0.267
14.000	-	-	100	0.171	0.171	0.171
14.001	-	-	100	0.000	0.000	0.000
15.000	-	-	100	0.319	0.319	0.319
8.007	-	-	100	0.466	0.466	0.466
16.000	-	-	100	0.265	0.265	0.265
16.001	-	-	100	0.000	0.000	0.000
17.000	-	-	100	0.069	0.069	0.069
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Micro Drainage	Network 2018.1.1	

Area Summary for JNP Surface Water Network 1 - Northern Parcel REV D
2020.01.30

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
16.002	-	-	100	0.289	0.289	0.289
18.000	-	-	100	0.307	0.307	0.307
16.003	-	-	100	0.409	0.409	0.409
19.000	-	-	100	0.243	0.243	0.243
16.004	-	-	100	0.417	0.417	0.417
16.005	-	-	100	0.400	0.400	0.400
20.000	-	-	100	0.062	0.062	0.062
16.006	-	-	100	0.170	0.170	0.170
8.008	-	-	100	0.553	0.553	0.553
8.009	-	-	100	0.146	0.146	0.146
21.000	-	-	100	0.132	0.132	0.132
21.001	-	-	100	0.138	0.138	0.138
22.000	-	-	100	0.024	0.024	0.024
22.001	-	-	100	0.305	0.305	0.305
21.002	-	-	100	0.493	0.493	0.493
23.000	-	-	100	0.046	0.046	0.046
21.003	-	-	100	0.230	0.230	0.230
24.000	-	-	100	0.045	0.045	0.045
24.001	-	-	100	0.041	0.041	0.041
24.002	-	-	100	0.221	0.221	0.221
21.004	-	-	100	0.202	0.202	0.202
21.005	-	-	100	0.000	0.000	0.000
25.000	-	-	100	0.073	0.073	0.073
26.000	-	-	100	0.046	0.046	0.046
21.006	-	-	100	0.979	0.979	0.979
21.007	-	-	100	0.139	0.139	0.139
27.000	-	-	100	0.073	0.073	0.073
27.001	-	-	100	0.223	0.223	0.223
21.008	-	-	100	0.307	0.307	0.307
8.010	-	-	100	0.537	0.537	0.537
8.011	-	-	100	0.745	0.745	0.745
28.000	-	-	100	1.296	1.296	1.296
28.001	-	-	100	0.000	0.000	0.000
28.002	-	-	100	0.000	0.000	0.000
1.013	-	-	100	0.000	0.000	0.000
1.014	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				20.634	20.634	20.634

Free Flowing Outfall Details for JNP Surface Water Network 1 - Northern
Parcel REV D 2020.01.30

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D, L (mm)	W (mm)
1.014	184	4.933	1.629	1.629	3000	0

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 1 Northern Network																																																									
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<u>Simulation Criteria for JNP Surface Water Network 1 - Northern Parcel REV D</u> <u>2020.01.30</u>																																																										
<table border="0"> <tr> <td>Volumetric Runoff Coeff</td> <td>0.750</td> <td>Additional Flow - % of Total Flow</td> <td>0.000</td> </tr> <tr> <td>Areal Reduction Factor</td> <td>1.000</td> <td>MADD Factor * 10m³/ha Storage</td> <td>0.000</td> </tr> <tr> <td>Hot Start (mins)</td> <td>0</td> <td>Inlet Coefficient</td> <td>0.800</td> </tr> <tr> <td>Hot Start Level (mm)</td> <td>0</td> <td>Flow per Person per Day (l/per/day)</td> <td>0.000</td> </tr> <tr> <td>Manhole Headloss Coeff (Global)</td> <td>0.500</td> <td>Run Time (mins)</td> <td>60</td> </tr> <tr> <td>Foul Sewage per hectare (l/s)</td> <td>0.000</td> <td>Output Interval (mins)</td> <td>1</td> </tr> </table> <table border="0"> <tr> <td>Number of Input Hydrographs</td> <td>0</td> <td>Number of Storage Structures</td> <td>1</td> </tr> <tr> <td>Number of Online Controls</td> <td>1</td> <td>Number of Time/Area Diagrams</td> <td>0</td> </tr> <tr> <td>Number of Offline Controls</td> <td>0</td> <td>Number of Real Time Controls</td> <td>0</td> </tr> </table> <u>Synthetic Rainfall Details</u> <table border="0"> <tr> <td>Rainfall Model</td> <td>FEH</td> </tr> <tr> <td>Return Period (years)</td> <td>2</td> </tr> <tr> <td>FEH Rainfall Version</td> <td>2013</td> </tr> <tr> <td>Site Location</td> <td>GB 500450 103100 TQ 00450 03100</td> </tr> <tr> <td>Data Type</td> <td>Catchment</td> </tr> <tr> <td>Summer Storms</td> <td>Yes</td> </tr> <tr> <td>Winter Storms</td> <td>No</td> </tr> <tr> <td>Cv (Summer)</td> <td>0.750</td> </tr> <tr> <td>Cv (Winter)</td> <td>0.840</td> </tr> <tr> <td>Storm Duration (mins)</td> <td>30</td> </tr> </table>			Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000	Areal Reduction Factor	1.000	MADD Factor * 10m ³ /ha Storage	0.000	Hot Start (mins)	0	Inlet Coefficient	0.800	Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000	Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60	Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1	Number of Input Hydrographs	0	Number of Storage Structures	1	Number of Online Controls	1	Number of Time/Area Diagrams	0	Number of Offline Controls	0	Number of Real Time Controls	0	Rainfall Model	FEH	Return Period (years)	2	FEH Rainfall Version	2013	Site Location	GB 500450 103100 TQ 00450 03100	Data Type	Catchment	Summer Storms	Yes	Winter Storms	No	Cv (Summer)	0.750	Cv (Winter)	0.840	Storm Duration (mins)	30
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Online Controls for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30 Hydro-Brake® Optimum Manhole: 183, DS/PN: 1.014, Volume (m³): 208.7 Unit Reference MD-SHE-0188-2350-2748-2350 Design Head (m)2.748 Design Flow (l/s)23.5 Flush-Flo™Calculated ObjectiveMinimise upstream storage ApplicationSurface Sump AvailableYes Diameter (mm)188 Invert Level (m)1.729 Minimum Outlet Pipe Diameter (mm)225 Suggested Manhole Diameter (mm)1800 <table><tr><td>Control Points</td><td>Head (m)</td><td>Flow (l/s)</td></tr><tr><td>Design Point (Calculated)</td><td>2.748</td><td>23.5</td></tr><tr><td>Flush-Flo™</td><td>0.808</td><td>23.5</td></tr><tr><td>Kick-Flo®</td><td>1.658</td><td>18.5</td></tr><tr><td>Mean Flow over Head Range</td><td>-</td><td>20.6</td></tr></table> The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated <table><tr><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td></tr><tr><td>0.100</td><td>6.6</td><td>1.200</td><td>22.7</td><td>3.000</td><td>24.5</td><td>7.000</td><td>36.8</td></tr><tr><td>0.200</td><td>17.1</td><td>1.400</td><td>21.5</td><td>3.500</td><td>26.4</td><td>7.500</td><td>38.1</td></tr><tr><td>0.300</td><td>20.1</td><td>1.600</td><td>19.4</td><td>4.000</td><td>28.1</td><td>8.000</td><td>39.3</td></tr><tr><td>0.400</td><td>21.6</td><td>1.800</td><td>19.2</td><td>4.500</td><td>29.8</td><td>8.500</td><td>40.5</td></tr><tr><td>0.500</td><td>22.6</td><td>2.000</td><td>20.2</td><td>5.000</td><td>31.3</td><td>9.000</td><td>41.6</td></tr><tr><td>0.600</td><td>23.1</td><td>2.200</td><td>21.1</td><td>5.500</td><td>32.8</td><td>9.500</td><td>42.7</td></tr><tr><td>0.800</td><td>23.5</td><td>2.400</td><td>22.0</td><td>6.000</td><td>34.2</td><td></td><td></td></tr><tr><td>1.000</td><td>23.3</td><td>2.600</td><td>22.9</td><td>6.500</td><td>35.5</td><td></td><td></td></tr></table> ©1982-2018 Innovyze			Control Points	Head (m)	Flow (l/s)	Design Point (Calculated)	2.748	23.5	Flush-Flo™	0.808	23.5	Kick-Flo®	1.658	18.5	Mean Flow over Head Range	-	20.6	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	0.100	6.6	1.200	22.7	3.000	24.5	7.000	36.8	0.200	17.1	1.400	21.5	3.500	26.4	7.500	38.1	0.300	20.1	1.600	19.4	4.000	28.1	8.000	39.3	0.400	21.6	1.800	19.2	4.500	29.8	8.500	40.5	0.500	22.6	2.000	20.2	5.000	31.3	9.000	41.6	0.600	23.1	2.200	21.1	5.500	32.8	9.500	42.7	0.800	23.5	2.400	22.0	6.000	34.2			1.000	23.3	2.600	22.9	6.500	35.5		
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Micro Drainage	Network 2018.1.1		
<u>Storage Structures for JNP Surface Water Network 1 - Northern Parcel REV D</u> <u>2020.01.30</u>			
<u>Tank or Pond Manhole: 183, DS/PN: 1.014</u>			
Invert Level (m) 1.800			
Depth (m)	Area (m²)	Depth (m) Area (m²)	Depth (m) Area (m²)
0.000	585.4	0.600 1001.0	2.900 12036.8
0.300	692.8	0.601 8726.0	
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Micro Drainage		
Ford Airfield System 1 Northern Network		Network 2018.1.1
Designed by IS Checked by Amc		
<u>2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30</u>		
Simulation Criteria		
Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000		
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 0.000		
Hot Start Level (mm) 0 Inlet Coefficient 0.800		
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000		
Foul Sewage per hectare (l/s) 0.000		
Number of Input Hydrographs 0 Number of Storage Structures 1		
Number of Online Controls 1 Number of Time/Area Diagrams 0		
Number of Offline Controls 0 Number of Real Time Controls 0		
Synthetic Rainfall Details		
Rainfall Model FEH		
FEH Rainfall Version 2013		
Site Location GB 500450 103100 TQ 00450 03100		
Data Type Catchment		
Cv (Summer) 0.750		
Cv (Winter) 0.840		
Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF		
Analysis Timestep Fine Inertia Status OFF		
DTS Status OFF		
Profile(s) Summer and Winter		
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440, 10080		
Return Period(s) (years) 2, 30, 100		
Climate Change (%) 0, 0, 40		
PN	US/MH Name Storm	Return Period
		Climate Change
		First (X) Surge
		First (Y) Flood
		First (Z) Overflow
		Overflow Act.
		Water Level (m)
1.000	100 15 Winter	2
		+0%
		100/15 Summer

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 1 Northern Network	
Date 10/02/2020 13:48 File C85228 SW Network 1 Nor...	Designed by IS Checked by Amc	
Micro Drainage	Network 2018.1.1	

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30

PN	US/MH Name	Surcharged Flooded		Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
		Depth (m)	Volume (m³)					
1.000	100	-0.365	0.000	0.30		111.2	OK	
1.001	101	-0.320	0.000	0.44		151.0	OK	
1.002	102	-0.501	0.000	0.24		147.9	OK	
1.003	103	-0.566	0.000	0.28		278.0	OK	
2.000	105	-0.325	0.000	0.16		34.8	OK	
2.001	106	-0.238	0.000	0.42		51.6	OK	
2.002	107	-0.235	0.000	0.45		77.9	OK	
2.003	108	-0.383	0.000	0.28		101.9	OK	
1.004	104	-0.503	0.000	0.40		398.3	OK	
3.000	110	-0.330	0.000	0.16		32.5	OK	
3.001	111	-0.328	0.000	0.17		32.1	OK	
3.002	112	-0.417	0.000	0.19		67.6	OK	
3.003	113	-0.352	0.000	0.28		90.4	OK	
4.000	115	-0.311	0.000	0.20		42.1	OK	
3.004	114	-0.313	0.000	0.44		127.7	OK	
5.000	117	-0.193	0.000	0.27		40.2	OK	
3.005	116	-0.307	0.000	0.48		177.2	OK	

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP				Ford Airfield System 1 Northern Network				
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Micro Drainage				Network 2018.1.1				
<u>2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30</u>								
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow Overflow	Overflow Act.
6.000	118 15	Winter	2	+0%	100/15 Summer			
1.005	109 15	Winter	2	+0%	100/15 Summer			
1.006	119 15	Winter	2	+0%	100/15 Summer			
1.007	120 15	Winter	2	+0%	100/15 Summer			
1.008	121 15	Winter	2	+0%	100/15 Summer			
1.009	122 15	Winter	2	+0%	100/15 Summer			
7.000	124 15	Winter	2	+0%	100/15 Summer			
1.010	123 15	Winter	2	+0%	100/15 Summer			
1.011	125 30	Winter	2	+0%	100/15 Summer			
1.012	126 30	Winter	2	+0%	100/15 Summer			
8.000	128 15	Winter	2	+0%	100/15 Winter			
8.001	129 15	Winter	2	+0%	100/15 Summer	100/30 Winter		
9.000	131 15	Winter	2	+0%	100/15 Summer			
8.002	130 15	Winter	2	+0%	100/15 Summer			
10.000	133 15	Winter	2	+0%	100/15 Winter			
10.001	134 15	Winter	2	+0%	100/15 Summer			
10.002	135 15	Winter	2	+0%	100/15 Summer			
11.000	137 15	Winter	2	+0%	100/15 Winter			
10.003	136 15	Winter	2	+0%	100/15 Summer			
8.003	132 15	Winter	2	+0%	100/15 Summer			
12.000	139 15	Winter	2	+0%	30/15 Summer			
8.004	138 15	Winter	2	+0%	100/15 Summer	100/30 Winter		
8.005	140 15	Winter	2	+0%	100/15 Summer			
13.000	142 15	Winter	2	+0%	100/15 Winter			
13.001	143 15	Winter	2	+0%	100/15 Summer			
8.006	141 15	Winter	2	+0%	100/15 Summer			
14.000	145 15	Winter	2	+0%	100/15 Summer			
14.001	146 15	Winter	2	+0%	100/15 Summer			
15.000	147 15	Winter	2	+0%	100/15 Summer			
8.007	144 15	Winter	2	+0%	100/15 Summer			
16.000	149 15	Winter	2	+0%	100/15 Winter			
16.001	150 15	Winter	2	+0%	100/15 Winter			
17.000	152 15	Winter	2	+0%	100/15 Winter			
16.002	151 15	Winter	2	+0%	100/15 Summer			
18.000	154 15	Winter	2	+0%	30/15 Summer			
16.003	153 15	Winter	2	+0%	100/15 Summer			
19.000	156 15	Winter	2	+0%	100/15 Summer			
16.004	155 15	Winter	2	+0%	100/15 Summer			
16.005	157 15	Winter	2	+0%	100/15 Summer			
20.000	159 15	Winter	2	+0%	100/15 Summer			
16.006	158 15	Winter	2	+0%	100/15 Summer			
8.008	148 15	Winter	2	+0%	100/15 Summer	100/30 Winter		
8.009	160 15	Winter	2	+0%	100/15 Summer			
21.000	162 15	Winter	2	+0%	100/15 Summer			
21.001	163 15	Winter	2	+0%	100/15 Summer			
22.000	165a 15	Winter	2	+0%	100/15 Summer	100/30 Winter		
22.001	165 15	Winter	2	+0%	100/15 Summer			
21.002	164 15	Winter	2	+0%	100/15 Summer			
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Micro Drainage				Network 2018.1.1					
<u>2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30</u>									
PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
6.000	118	4.764	-0.335	0.000	0.15		31.9	OK	
1.005	109	3.979	-0.699	0.000	0.36		670.8	OK	
1.006	119	3.811	-0.702	0.000	0.36		704.7	OK	
1.007	120	3.627	-0.648	0.000	0.36		688.5	OK	
1.008	121	3.559	-0.574	0.000	0.40		654.3	OK	
1.009	122	3.457	-0.470	0.000	0.68		660.4	OK	
7.000	124	4.242	-0.187	0.000	0.30		31.6	OK	
1.010	123	3.350	-0.539	0.000	0.45		653.2	OK	
1.011	125	3.256	-0.534	0.000	0.50		625.5	OK	
1.012	126	3.188	-0.544	0.000	0.41		624.6	OK	
8.000	128	5.574	-0.363	0.000	0.08		14.4	OK	
8.001	129	4.975	-0.648	0.000	0.04		27.8	OK	1
9.000	131	5.166	-0.311	0.000	0.21		43.0	OK	
8.002	130	4.646	-0.578	0.000	0.20		169.8	OK	
10.000	133	5.654	-0.349	0.000	0.11		18.6	OK	
10.001	134	5.345	-0.352	0.000	0.11		18.6	OK	
10.002	135	4.975	-0.435	0.000	0.16		51.7	OK	
11.000	137	5.829	-0.380	0.000	0.06		23.9	OK	
10.003	136	4.820	-0.503	0.000	0.23		144.1	OK	
8.003	132	4.601	-0.528	0.000	0.30		298.2	OK	
12.000	139	5.056	-0.143	0.000	0.54		40.4	OK	
8.004	138	4.464	-0.406	0.000	0.46		365.3	OK	1
8.005	140	4.415	-0.375	0.000	0.64		364.5	OK	
13.000	142	5.976	-0.393	0.000	0.04		11.2	OK	
13.001	143	5.220	-0.347	0.000	0.12		36.4	OK	
8.006	141	4.272	-0.491	0.000	0.42		412.3	OK	
14.000	145	4.969	-0.175	0.000	0.35		28.9	OK	
14.001	146	4.771	-0.180	0.000	0.33		28.8	OK	
15.000	147	4.554	-0.294	0.000	0.26		55.1	OK	
8.007	144	3.794	-0.743	0.000	0.24		502.2	OK	
16.000	149	5.742	-0.294	0.000	0.26		45.3	OK	
16.001	150	5.297	-0.460	0.000	0.12		45.7	OK	
17.000	152	5.552	-0.232	0.000	0.11		11.7	OK	
16.002	151	4.830	-0.550	0.000	0.15		90.9	OK	
18.000	154	5.573	-0.148	0.000	0.50		52.2	OK	
16.003	153	4.601	-0.630	0.000	0.19		191.7	OK	
19.000	156	5.279	-0.168	0.000	0.40		41.3	OK	
16.004	155	4.388	-0.579	0.000	0.27		275.2	OK	
16.005	157	4.111	-0.548	0.000	0.32		313.6	OK	
20.000	159	4.972	-0.237	0.000	0.10		10.7	OK	
16.006	158	3.902	-0.535	0.000	0.34		331.1	OK	
8.008	148	3.686	-0.547	0.000	0.51		841.1	OK	1
8.009	160	3.528	-0.560	0.000	0.74		843.5	OK	
21.000	162	5.303	-0.188	0.000	0.30		22.5	OK	
21.001	163	4.681	-0.294	0.000	0.26		41.7	OK	
22.000	165a	4.744	-0.402	0.000	0.03		4.1	OK	1
22.001	165	4.318	-0.705	0.000	0.06		45.6	OK	
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Micro Drainage	Network 2018.1.1	

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
21.002	164	4.261	-0.596	0.000	0.18		139.3	OK	

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP				Ford Airfield System 1 Northern Network					
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Micro Drainage				Network 2018.1.1					
<u>2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30</u>									
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	
23.000	167	15 Winter	2	+0%	100/15 Winter				
21.003	166	15 Winter	2	+0%	100/15 Summer				
24.000	169a	15 Winter	2	+0%	100/15 Summer				
24.001	169	15 Winter	2	+0%	100/15 Summer				
24.002	170	15 Winter	2	+0%	100/15 Summer				
21.004	168	15 Winter	2	+0%	100/15 Summer				
21.005	171	15 Winter	2	+0%	100/15 Summer				
25.000	173	15 Winter	2	+0%	100/15 Winter				
26.000	174	15 Winter	2	+0%	100/15 Summer				
21.006	172	15 Winter	2	+0%	100/15 Summer				
21.007	175	15 Winter	2	+0%	100/15 Summer				
27.000	177	15 Winter	2	+0%	100/15 Summer				
27.001	178	15 Winter	2	+0%	100/15 Summer				
21.008	176	15 Winter	2	+0%	100/15 Summer				
8.010	161	15 Winter	2	+0%	100/15 Summer				
8.011	179	15 Winter	2	+0%	100/15 Summer	100/30 Winter			
28.000	180	15 Winter	2	+0%	100/15 Summer				
28.001	181	15 Winter	2	+0%	100/15 Summer				
28.002	182	30 Winter	2	+0%	100/15 Summer				
1.013	127	30 Winter	2	+0%	100/15 Summer				
1.014	183	10080 Winter	2	+0%	2/15 Summer				
PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
23.000	167	5.353	-0.255	0.000	0.05		7.8	OK	
21.003	166	4.160	-0.539	0.000	0.25		163.3	OK	
24.000	169a	4.910	-0.229	0.000	0.12		7.6	OK	
24.001	169	4.524	-0.355	0.000	0.08		13.2	OK	
24.002	170	4.455	-0.290	0.000	0.27		43.9	OK	
21.004	168	4.107	-0.534	0.000	0.35		221.1	OK	
21.005	171	3.741	-0.847	0.000	0.13		214.9	OK	
25.000	173	5.159	-0.232	0.000	0.12		12.6	OK	
26.000	174	4.855	-0.249	0.000	0.07		7.8	OK	
21.006	172	3.643	-0.761	0.000	0.20		303.1	OK	
21.007	175	3.561	-0.705	0.000	0.22		290.9	OK	
27.000	177	4.483	-0.224	0.000	0.15		12.6	OK	
27.001	178	3.842	-0.456	0.000	0.13		44.8	OK	
21.008	176	3.521	-0.677	0.000	0.20		313.9	OK	
8.010	161	3.469	-0.589	0.000	0.57		1159.8	OK	
8.011	179	3.292	-0.625	0.000	0.56		1168.8	OK	1
28.000	180	3.458	-0.544	0.000	0.30		216.8	OK	
28.001	181	3.320	-0.587	0.000	0.24		191.9	OK	
28.002	182	3.095	-0.542	0.000	0.16		130.1	OK	
1.013	127	3.086	-0.664	0.000	0.51		1815.5	OK	
1.014	183	2.981	1.027	0.000	0.63		23.5	SURCHARGED	
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Micro Drainage		
Ford Airfield System 1 Northern Network		Network 2018.1.1
Designed by IS Checked by Amc		
<u>30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30</u>		
<u>Simulation Criteria</u>		
Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000		
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 0.000		
Hot Start Level (mm) 0 Inlet Coefficient 0.800		
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000		
Foul Sewage per hectare (l/s) 0.000		
Number of Input Hydrographs 0 Number of Storage Structures 1		
Number of Online Controls 1 Number of Time/Area Diagrams 0		
Number of Offline Controls 0 Number of Real Time Controls 0		
<u>Synthetic Rainfall Details</u>		
Rainfall Model FEH		
FEH Rainfall Version 2013		
Site Location GB 500450 103100 TQ 00450 03100		
Data Type Catchment		
Cv (Summer) 0.750		
Cv (Winter) 0.840		
Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF		
Analysis Timestep Fine Inertia Status OFF		
DTS Status OFF		
Profile(s) Summer and Winter		
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440, 10080		
Return Period(s) (years) 2, 30, 100		
Climate Change (%) 0, 0, 40		
PN	US/MH Name Storm	Water Level (m)
	Return Period	
	Climate Change	
	First (X) Surge	
	First (Y) Flood	
	First (Z) Overflow	
	Overflow Act.	
1.000	100 15 Winter 30 +0% 100/15 Summer	5.674
1.001	101 15 Winter 30 +0% 100/15 Summer	5.465
1.002	102 15 Winter 30 +0% 100/15 Summer	5.065
1.003	103 15 Winter 30 +0% 100/15 Summer	4.842
2.000	105 15 Winter 30 +0% 100/15 Summer	5.684
2.001	106 15 Winter 30 +0% 100/15 Summer	5.457
2.002	107 15 Winter 30 +0% 100/15 Summer	5.432
2.003	108 15 Winter 30 +0% 100/15 Summer	5.024
1.004	104 15 Winter 30 +0% 100/15 Summer	4.684
3.000	110 15 Winter 30 +0% 100/15 Summer	5.501
3.001	111 15 Winter 30 +0% 100/15 Summer	5.225
3.002	112 15 Winter 30 +0% 100/15 Summer	5.090
3.003	113 15 Winter 30 +0% 100/15 Summer	5.031
4.000	115 15 Winter 30 +0% 100/15 Summer	5.111
3.004	114 15 Winter 30 +0% 100/15 Summer	4.990
5.000	117 15 Winter 30 +0% 100/15 Summer	5.885
3.005	116 15 Winter 30 +0% 100/15 Summer	4.940
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Micro Drainage	Network 2018.1.1	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30

PN	US/MH Name	Surcharged		Flooded		Pipe Flow (l/s)	Status	Level Exceeded
		Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)			
1.000	100	-0.229	0.000	0.65		238.8	OK	
1.001	101	-0.126	0.000	0.96		331.0	OK	
1.002	102	-0.363	0.000	0.52		322.6	OK	
1.003	103	-0.360	0.000	0.59		581.6	OK	
2.000	105	-0.261	0.000	0.35		74.8	OK	
2.001	106	-0.071	0.000	0.94		115.3	OK	
2.002	107	-0.068	0.000	0.98		168.8	OK	
2.003	108	-0.254	0.000	0.59		218.6	OK	
1.004	104	-0.271	0.000	0.82		825.5	OK	
3.000	110	-0.267	0.000	0.33		69.9	OK	
3.001	111	-0.264	0.000	0.36		69.1	OK	
3.002	112	-0.259	0.000	0.44		156.2	OK	
3.003	113	-0.126	0.000	0.61		199.3	OK	
4.000	115	-0.240	0.000	0.43		90.3	OK	
3.004	114	-0.064	0.000	0.97		279.4	OK	
5.000	117	-0.133	0.000	0.58		86.2	OK	
3.005	116	-0.057	0.000	0.99		364.0	OK	

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 1 Northern Network	
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Micro Drainage	Network 2018.1.1	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
6.000	118 15	Winter	30	+0%	100/15 Summer			
1.005	109 15	Winter	30	+0%	100/15 Summer			
1.006	119 15	Winter	30	+0%	100/15 Summer			
1.007	120 15	Winter	30	+0%	100/15 Summer			
1.008	121 15	Winter	30	+0%	100/15 Summer			
1.009	122 30	Winter	30	+0%	100/15 Summer			
7.000	124 15	Winter	30	+0%	100/15 Summer			
1.010	123 30	Winter	30	+0%	100/15 Summer			
1.011	125 30	Winter	30	+0%	100/15 Summer			
1.012	126 30	Winter	30	+0%	100/15 Summer			
8.000	128 15	Winter	30	+0%	100/15 Winter			
8.001	129 15	Winter	30	+0%	100/15 Summer	100/30 Winter		
9.000	131 15	Winter	30	+0%	100/15 Summer			
8.002	130 15	Winter	30	+0%	100/15 Summer			
10.000	133 15	Winter	30	+0%	100/15 Winter			
10.001	134 15	Winter	30	+0%	100/15 Summer			
10.002	135 15	Winter	30	+0%	100/15 Summer			
11.000	137 15	Winter	30	+0%	100/15 Winter			
10.003	136 15	Winter	30	+0%	100/15 Summer			
8.003	132 15	Winter	30	+0%	100/15 Summer			
12.000	139 15	Winter	30	+0%	30/15 Summer			
8.004	138 15	Winter	30	+0%	100/15 Summer	100/30 Winter		
8.005	140 30	Winter	30	+0%	100/15 Summer			
13.000	142 15	Winter	30	+0%	100/15 Winter			
13.001	143 15	Winter	30	+0%	100/15 Summer			
8.006	141 15	Winter	30	+0%	100/15 Summer			
14.000	145 15	Winter	30	+0%	100/15 Summer			
14.001	146 15	Winter	30	+0%	100/15 Summer			
15.000	147 15	Winter	30	+0%	100/15 Summer			
8.007	144 15	Winter	30	+0%	100/15 Summer			
16.000	149 15	Winter	30	+0%	100/15 Winter			
16.001	150 15	Winter	30	+0%	100/15 Winter			
17.000	152 15	Winter	30	+0%	100/15 Winter			
16.002	151 15	Winter	30	+0%	100/15 Summer			
18.000	154 15	Winter	30	+0%	30/15 Summer			
16.003	153 15	Winter	30	+0%	100/15 Summer			
19.000	156 15	Winter	30	+0%	100/15 Summer			
16.004	155 15	Winter	30	+0%	100/15 Summer			
16.005	157 15	Winter	30	+0%	100/15 Summer			
20.000	159 15	Winter	30	+0%	100/15 Summer			
16.006	158 15	Winter	30	+0%	100/15 Summer			
8.008	148 30	Winter	30	+0%	100/15 Summer	100/30 Winter		
8.009	160 30	Winter	30	+0%	100/15 Summer			
21.000	162 15	Winter	30	+0%	100/15 Summer			
21.001	163 15	Winter	30	+0%	100/15 Summer			
22.000	165a 15	Winter	30	+0%	100/15 Summer	100/30 Winter		
22.001	165 15	Winter	30	+0%	100/15 Summer			
21.002	164 15	Winter	30	+0%	100/15 Summer			

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP				Ford Airfield System 1 Northern Network					
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Micro Drainage				Network 2018.1.1					
30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30									
PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Overflow Cap.	Pipe Flow (l/s)	Status	Level Exceeded	
6.000	118	4.823	-0.276	0.000	0.32	68.5	OK		
1.005	109	4.289	-0.389	0.000	0.74	1366.2	OK		
1.006	119	4.191	-0.322	0.000	0.70	1384.1	OK		
1.007	120	4.105	-0.170	0.000	0.69	1326.9	OK		
1.008	121	4.047	-0.086	0.000	0.76	1226.1	OK		
1.009	122	3.927	0.000	0.000	1.31	1266.5	OK		
7.000	124	4.307	-0.122	0.000	0.65	67.8	OK		
1.010	123	3.817	-0.072	0.000	0.88	1263.5	OK		
1.011	125	3.694	-0.096	0.000	0.99	1247.6	OK		
1.012	126	3.601	-0.131	0.000	0.82	1246.4	OK		
8.000	128	5.615	-0.322	0.000	0.18	30.9	OK		
8.001	129	5.052	-0.571	0.000	0.10	63.3	OK		1
9.000	131	5.239	-0.238	0.000	0.44	91.2	OK		
8.002	130	4.967	-0.257	0.000	0.39	322.4	OK		
10.000	133	5.705	-0.298	0.000	0.23	39.9	OK		
10.001	134	5.391	-0.306	0.000	0.21	37.2	OK		
10.002	135	5.076	-0.334	0.000	0.39	122.7	OK		
11.000	137	5.865	-0.344	0.000	0.12	51.4	OK		
10.003	136	5.021	-0.302	0.000	0.53	328.1	OK		
8.003	132	4.941	-0.188	0.000	0.58	576.8	OK		
12.000	139	5.301	0.102	0.000	1.12	83.9	SURCHARGED		
8.004	138	4.854	-0.016	0.000	0.88	706.2	OK		1
8.005	140	4.790	0.000	0.000	1.12	637.9	OK		
13.000	142	6.005	-0.364	0.000	0.08	24.1	OK		
13.001	143	5.286	-0.281	0.000	0.29	88.6	OK		
8.006	141	4.500	-0.263	0.000	0.81	796.4	OK		
14.000	145	5.044	-0.100	0.000	0.76	62.1	OK		
14.001	146	4.842	-0.109	0.000	0.72	61.9	OK		
15.000	147	4.640	-0.208	0.000	0.56	118.2	OK		
8.007	144	4.289	-0.248	0.000	0.46	953.4	OK		
16.000	149	5.828	-0.208	0.000	0.55	95.8	OK		
16.001	150	5.363	-0.394	0.000	0.23	87.2	OK		
17.000	152	5.585	-0.199	0.000	0.24	25.1	OK		
16.002	151	4.936	-0.444	0.000	0.34	201.6	OK		
18.000	154	5.806	0.085	0.000	1.08	113.0	SURCHARGED		
16.003	153	4.771	-0.460	0.000	0.44	438.0	OK		
19.000	156	5.364	-0.083	0.000	0.85	88.7	OK		
16.004	155	4.597	-0.370	0.000	0.62	633.7	OK		
16.005	157	4.382	-0.277	0.000	0.70	685.8	OK		
20.000	159	5.003	-0.206	0.000	0.22	23.0	OK		
16.006	158	4.305	-0.132	0.000	0.69	669.6	OK		
8.008	148	4.233	0.000	0.000	0.87	1425.6	OK		1
8.009	160	4.088	0.000	0.000	1.26	1440.8	OK		
21.000	162	5.367	-0.124	0.000	0.58	44.4	OK		
21.001	163	4.776	-0.199	0.000	0.58	93.9	OK		
22.000	165a	4.763	-0.383	0.000	0.05	8.8	OK		1
22.001	165	4.518	-0.505	0.000	0.15	117.9	OK		
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Micro Drainage	Network 2018.1.1	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
21.002	164	4.493	-0.364	0.000	0.42		327.6	OK	

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 1 Northern Network	
Date 10/02/2020 13:48 File C85228 SW Network 1 Nor...	Designed by IS Checked by Amc	
Micro Drainage	Network 2018.1.1	

**30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30**

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
23.000	167	15 Winter	30	+0%	100/15 Winter			
21.003	166	15 Winter	30	+0%	100/15 Summer			
24.000	169a	15 Winter	30	+0%	100/15 Summer			
24.001	169	15 Winter	30	+0%	100/15 Summer			
24.002	170	15 Winter	30	+0%	100/15 Summer			
21.004	168	15 Winter	30	+0%	100/15 Summer			
21.005	171	30 Winter	30	+0%	100/15 Summer			
25.000	173	15 Winter	30	+0%	100/15 Winter			
26.000	174	15 Winter	30	+0%	100/15 Summer			
21.006	172	30 Winter	30	+0%	100/15 Summer			
21.007	175	30 Winter	30	+0%	100/15 Summer			
27.000	177	15 Winter	30	+0%	100/15 Summer			
27.001	178	30 Winter	30	+0%	100/15 Summer			
21.008	176	30 Winter	30	+0%	100/15 Summer			
8.010	161	30 Winter	30	+0%	100/15 Summer			
8.011	179	30 Winter	30	+0%	100/15 Summer	100/30 Winter		
28.000	180	15 Winter	30	+0%	100/15 Summer			
28.001	181	10080 Winter	30	+0%	100/15 Summer			
28.002	182	10080 Winter	30	+0%	100/15 Summer			
1.013	127	10080 Winter	30	+0%	100/15 Summer			
1.014	183	10080 Winter	30	+0%	2/15 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
23.000	167	5.376	-0.232	0.000	0.11		16.8	OK	
21.003	166	4.418	-0.281	0.000	0.59		384.4	OK	
24.000	169a	4.945	-0.194	0.000	0.27		16.4	OK	
24.001	169	4.609	-0.270	0.000	0.18		30.2	OK	
24.002	170	4.577	-0.168	0.000	0.69		111.1	OK	
21.004	168	4.366	-0.275	0.000	0.81		517.9	OK	
21.005	171	4.113	-0.475	0.000	0.28		446.2	OK	
25.000	173	5.193	-0.198	0.000	0.25		27.1	OK	
26.000	174	4.880	-0.224	0.000	0.14		16.8	OK	
21.006	172	4.092	-0.312	0.000	0.41		620.3	OK	
21.007	175	4.065	-0.201	0.000	0.45		589.1	OK	
27.000	177	4.522	-0.185	0.000	0.31		27.1	OK	
27.001	178	4.049	-0.249	0.000	0.25		87.1	OK	
21.008	176	4.043	-0.155	0.000	0.42		642.7	OK	
8.010	161	4.014	-0.044	0.000	1.00		2035.8	OK	
8.011	179	3.784	-0.133	0.000	1.00		2097.5	OK	1
28.000	180	3.645	-0.357	0.000	0.65		466.1	OK	
28.001	181	3.507	-0.400	0.000	0.01		5.4	OK	
28.002	182	3.508	-0.129	0.000	0.01		5.1	OK	
1.013	127	3.508	-0.242	0.000	0.02		87.1	OK	
1.014	183	3.507	1.553	0.000	0.63		23.5	SURCHARGED	

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JNP Group		Page 37
3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP		
Date 10/02/2020 13:48 File C85228 SW Network 1 Nor...		
Micro Drainage		
Ford Airfield System 1 Northern Network		Network 2018.1.1
Designed by IS Checked by Amc		
<u>100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30</u>		
Simulation Criteria		
Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000		
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 0.000		
Hot Start Level (mm) 0 Inlet Coefficient 0.800		
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000		
Foul Sewage per hectare (l/s) 0.000		
Number of Input Hydrographs 0 Number of Storage Structures 1		
Number of Online Controls 1 Number of Time/Area Diagrams 0		
Number of Offline Controls 0 Number of Real Time Controls 0		
Synthetic Rainfall Details		
Rainfall Model FEH		
FEH Rainfall Version 2013		
Site Location GB 500450 103100 TQ 00450 03100		
Data Type Catchment		
Cv (Summer) 0.750		
Cv (Winter) 0.840		
Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF		
Analysis Timestep Fine Inertia Status OFF		
DTS Status OFF		
Profile(s) Summer and Winter		
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440, 10080		
Return Period(s) (years) 2, 30, 100		
Climate Change (%) 0, 0, 40		
PN	US/MH Name Storm	Return Period Climate Change First (X) Surchage First (Y) Flood First (Z) Overflow Overflow Act. Water Level (m)
1.000	100 30 Winter	100 +40% 100/15 Summer 6.943
1.001	101 30 Winter	100 +40% 100/15 Summer 6.876
1.002	102 30 Winter	100 +40% 100/15 Summer 6.780
1.003	103 30 Winter	100 +40% 100/15 Summer 6.730
2.000	105 30 Winter	100 +40% 100/15 Summer 6.856
2.001	106 30 Winter	100 +40% 100/15 Summer 6.822
2.002	107 30 Winter	100 +40% 100/15 Summer 6.805
2.003	108 30 Winter	100 +40% 100/15 Summer 6.701
1.004	104 30 Winter	100 +40% 100/15 Summer 6.628
3.000	110 30 Winter	100 +40% 100/15 Summer 6.765
3.001	111 30 Winter	100 +40% 100/15 Summer 6.737
3.002	112 30 Winter	100 +40% 100/15 Summer 6.716
3.003	113 30 Winter	100 +40% 100/15 Summer 6.686
4.000	115 30 Winter	100 +40% 100/15 Summer 6.691
3.004	114 30 Winter	100 +40% 100/15 Summer 6.653
5.000	117 30 Winter	100 +40% 100/15 Summer 6.764
3.005	116 30 Winter	100 +40% 100/15 Summer 6.613
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JNP Group		Page 38
3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 1 Northern Network	
Date 10/02/2020 13:48 File C85228 SW Network 1 Nor...	Designed by IS Checked by Amc	
Micro Drainage	Network 2018.1.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30

PN	US/MH Name	Surcharged Flooded		Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
		Depth (m)	Volume (m³)					
1.000	100	1.040	0.000	0.94		344.5	SURCHARGED	
1.001	101	1.285	0.000	1.42		489.8	SURCHARGED	
1.002	102	1.352	0.000	0.68		425.2	SURCHARGED	
1.003	103	1.528	0.000	0.83		821.5	SURCHARGED	
2.000	105	0.911	0.000	0.49		106.0	SURCHARGED	
2.001	106	1.294	0.000	1.22		150.4	FLOOD RISK	
2.002	107	1.305	0.000	1.39		239.5	FLOOD RISK	
2.003	108	1.423	0.000	0.79		290.6	SURCHARGED	
1.004	104	1.673	0.000	1.07		1074.3	SURCHARGED	
3.000	110	0.997	0.000	0.46		96.7	SURCHARGED	
3.001	111	1.248	0.000	0.53		102.7	SURCHARGED	
3.002	112	1.367	0.000	0.55		192.6	SURCHARGED	
3.003	113	1.529	0.000	0.82		267.5	SURCHARGED	
4.000	115	1.340	0.000	0.59		124.1	SURCHARGED	
3.004	114	1.599	0.000	1.32		382.2	SURCHARGED	
5.000	117	0.746	0.000	0.82		121.2	SURCHARGED	
3.005	116	1.616	0.000	1.43		526.3	SURCHARGED	

JNP Group							Page 39	
3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP					Ford Airfield System 1 Northern Network			
Date 10/02/2020 13:48 File C85228 SW Network 1 Nor...					Designed by IS Checked by Amc			
Micro Drainage					Network 2018.1.1			
<u>100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30</u>								
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.
6.000	118 30	Winter	100	+40%	100/15 Summer			
1.005	109 30	Winter	100	+40%	100/15 Summer			
1.006	119 30	Winter	100	+40%	100/15 Summer			
1.007	120 30	Winter	100	+40%	100/15 Summer			
1.008	121 30	Winter	100	+40%	100/15 Summer			
1.009	122 30	Winter	100	+40%	100/15 Summer			
7.000	124 30	Winter	100	+40%	100/15 Summer			
1.010	123 30	Winter	100	+40%	100/15 Summer			
1.011	125 30	Winter	100	+40%	100/15 Summer			
1.012	126 30	Winter	100	+40%	100/15 Summer			
8.000	128 30	Winter	100	+40%	100/15 Winter			
8.001	129 30	Winter	100	+40%	100/15 Summer	100/30 Winter		
9.000	131 30	Winter	100	+40%	100/15 Summer			
8.002	130 30	Winter	100	+40%	100/15 Summer			
10.000	133 30	Winter	100	+40%	100/15 Winter			
10.001	134 30	Winter	100	+40%	100/15 Summer			
10.002	135 30	Winter	100	+40%	100/15 Summer			
11.000	137 30	Winter	100	+40%	100/15 Winter			
10.003	136 30	Winter	100	+40%	100/15 Summer			
8.003	132 30	Winter	100	+40%	100/15 Summer			
12.000	139 30	Winter	100	+40%	30/15 Summer			
8.004	138 30	Winter	100	+40%	100/15 Summer	100/30 Winter		
8.005	140 30	Winter	100	+40%	100/15 Summer			
13.000	142 30	Winter	100	+40%	100/15 Winter			
13.001	143 30	Winter	100	+40%	100/15 Summer			
8.006	141 30	Winter	100	+40%	100/15 Summer			
14.000	145 30	Winter	100	+40%	100/15 Summer			
14.001	146 30	Winter	100	+40%	100/15 Summer			
15.000	147 30	Winter	100	+40%	100/15 Summer			
8.007	144 30	Winter	100	+40%	100/15 Summer			
16.000	149 30	Winter	100	+40%	100/15 Winter			
16.001	150 30	Winter	100	+40%	100/15 Winter			
17.000	152 30	Winter	100	+40%	100/15 Winter			
16.002	151 30	Winter	100	+40%	100/15 Summer			
18.000	154 30	Winter	100	+40%	30/15 Summer			
16.003	153 30	Winter	100	+40%	100/15 Summer			
19.000	156 30	Winter	100	+40%	100/15 Summer			
16.004	155 30	Winter	100	+40%	100/15 Summer			
16.005	157 30	Winter	100	+40%	100/15 Summer			
20.000	159 30	Winter	100	+40%	100/15 Summer			
16.006	158 30	Winter	100	+40%	100/15 Summer			
8.008	148 30	Winter	100	+40%	100/15 Summer	100/30 Winter		
8.009	160 30	Winter	100	+40%	100/15 Summer			
21.000	162 30	Winter	100	+40%	100/15 Summer			
21.001	163 30	Winter	100	+40%	100/15 Summer			
22.000	165a 30	Winter	100	+40%	100/15 Summer	100/30 Winter		
22.001	165 30	Winter	100	+40%	100/15 Summer			
21.002	164 30	Winter	100	+40%	100/15 Summer			
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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP				Ford Airfield System 1 Northern Network					
Date 10/02/2020 13:48 File C85228 SW Network 1 Nor...				Designed by IS Checked by Amc					
Micro Drainage				Network 2018.1.1					
<u>100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30</u>									
PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
6.000	118	6.430	1.331	0.000	0.44		93.9	FLOOD RISK	
1.005	109	6.398	1.720	0.000	0.97		1794.4	SURCHARGED	
1.006	119	6.279	1.766	0.000	0.96		1876.0	SURCHARGED	
1.007	120	6.127	1.852	0.000	0.98		1873.5	SURCHARGED	
1.008	121	6.002	1.869	0.000	1.11		1808.7	SURCHARGED	
1.009	122	5.746	1.819	0.000	2.03		1968.6	SURCHARGED	
7.000	124	5.693	1.264	0.000	0.92		96.2	SURCHARGED	
1.010	123	5.629	1.740	0.000	1.38		1988.3	SURCHARGED	
1.011	125	5.382	1.592	0.000	1.57		1986.8	FLOOD RISK	
1.012	126	5.134	1.402	0.000	1.31		1987.4	SURCHARGED	
8.000	128	6.774	0.837	0.000	0.25		43.4	FLOOD RISK	
8.001	129	6.757	1.134	17.677	0.19		123.3	FLOOD	1
9.000	131	6.879	1.402	0.000	0.61		126.8	SURCHARGED	
8.002	130	6.837	1.613	0.000	0.49		410.2	SURCHARGED	
10.000	133	6.932	0.929	0.000	0.33		58.5	FLOOD RISK	
10.001	134	6.906	1.209	0.000	0.57		100.3	SURCHARGED	
10.002	135	6.882	1.472	0.000	0.61		193.4	SURCHARGED	
11.000	137	6.886	0.677	0.000	0.18		72.8	SURCHARGED	
10.003	136	6.864	1.541	0.000	0.69		420.9	SURCHARGED	
8.003	132	6.814	1.685	0.000	0.70		700.0	SURCHARGED	
12.000	139	7.024	1.825	0.000	1.52		113.7	FLOOD RISK	
8.004	138	6.720	1.850	0.791	1.19		950.9	FLOOD	1
8.005	140	6.632	1.842	0.000	1.64		932.6	FLOOD RISK	
13.000	142	6.628	0.259	0.000	0.11		34.5	SURCHARGED	
13.001	143	6.614	1.047	0.000	0.41		124.0	SURCHARGED	
8.006	141	6.572	1.809	0.000	1.11		1087.3	SURCHARGED	
14.000	145	6.584	1.440	0.000	1.08		88.6	SURCHARGED	
14.001	146	6.504	1.553	0.000	0.95		82.0	SURCHARGED	
15.000	147	6.424	1.576	0.000	0.76		160.9	SURCHARGED	
8.007	144	6.356	1.819	0.000	0.70		1437.2	SURCHARGED	
16.000	149	6.698	0.662	0.000	0.76		133.7	SURCHARGED	
16.001	150	6.637	0.880	0.000	0.36		134.3	SURCHARGED	
17.000	152	6.635	0.851	0.000	0.35		35.9	SURCHARGED	
16.002	151	6.605	1.225	0.000	0.60		353.2	SURCHARGED	
18.000	154	7.014	1.293	0.000	1.52		158.7	SURCHARGED	
16.003	153	6.581	1.350	0.000	0.59		591.4	SURCHARGED	
19.000	156	6.787	1.340	0.000	1.20		125.4	SURCHARGED	
16.004	155	6.539	1.572	0.000	0.76		768.9	SURCHARGED	
16.005	157	6.455	1.796	0.000	0.81		792.2	SURCHARGED	
20.000	159	6.395	1.186	0.000	0.30		31.8	SURCHARGED	
16.006	158	6.359	1.922	0.000	0.88		850.4	SURCHARGED	
8.008	148	6.246	2.013	0.315	1.48		2419.8	FLOOD	1
8.009	160	5.936	1.848	0.000	2.14		2438.2	FLOOD RISK	
21.000	162	6.326	0.835	0.000	0.86		65.4	SURCHARGED	
21.001	163	6.177	1.202	0.000	0.82		133.0	SURCHARGED	
22.000	165a	6.150	1.004	0.182	0.08		13.6	FLOOD	1
22.001	165	6.148	1.125	0.000	0.20		158.6	FLOOD RISK	
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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 1 Northern Network	
Date 10/02/2020 13:48 File C85228 SW Network 1 Nor...	Designed by IS Checked by Amc	
Micro Drainage	Network 2018.1.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
21.002	164	6.139	1.282	0.000	0.55		424.7	SURCHARGED	

JNP Group		Page 42
3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 1 Northern Network	
Date 10/02/2020 13:48 File C85228 SW Network 1 Nor...	Designed by IS Checked by Amc	
Micro Drainage	Network 2018.1.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for JNP Surface Water Network 1 - Northern Parcel REV D 2020.01.30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.
23.000	167	30 Winter	100	+40%	100/15 Winter			
21.003	166	30 Winter	100	+40%	100/15 Summer			
24.000	169a	30 Winter	100	+40%	100/15 Summer			
24.001	169	30 Winter	100	+40%	100/15 Summer			
24.002	170	30 Winter	100	+40%	100/15 Summer			
21.004	168	30 Winter	100	+40%	100/15 Summer			
21.005	171	30 Winter	100	+40%	100/15 Summer			
25.000	173	30 Winter	100	+40%	100/15 Winter			
26.000	174	30 Winter	100	+40%	100/15 Summer			
21.006	172	30 Winter	100	+40%	100/15 Summer			
21.007	175	30 Winter	100	+40%	100/15 Summer			
27.000	177	30 Winter	100	+40%	100/15 Summer			
27.001	178	30 Winter	100	+40%	100/15 Summer			
21.008	176	30 Winter	100	+40%	100/15 Summer			
8.010	161	30 Winter	100	+40%	100/15 Summer			
8.011	179	30 Winter	100	+40%	100/15 Summer	100/30 Winter		
28.000	180	30 Winter	100	+40%	100/15 Summer			
28.001	181	30 Winter	100	+40%	100/15 Summer			
28.002	182	30 Winter	100	+40%	100/15 Summer			
1.013	127	30 Winter	100	+40%	100/15 Summer			
1.014	183	10080 Winter	100	+40%	2/15 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Overflow Cap. (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
23.000	167	6.126	0.518	0.000	0.16	23.9	SURCHARGED	
21.003	166	6.105	1.406	0.000	0.77	499.9	SURCHARGED	
24.000	169a	6.147	1.008	0.000	0.37	22.5	FLOOD RISK	
24.001	169	6.121	1.242	0.000	0.36	58.7	SURCHARGED	
24.002	170	6.110	1.365	0.000	0.92	148.0	SURCHARGED	
21.004	168	6.075	1.434	0.000	1.09	692.0	SURCHARGED	
21.005	171	6.037	1.449	0.000	0.38	601.1	SURCHARGED	
25.000	173	6.056	0.665	0.000	0.35	37.7	SURCHARGED	
26.000	174	6.031	0.927	0.000	0.20	23.9	SURCHARGED	
21.006	172	6.008	1.604	0.000	0.61	927.8	SURCHARGED	
21.007	175	5.962	1.696	0.000	0.72	940.5	SURCHARGED	
27.000	177	5.975	1.268	0.000	0.44	37.8	FLOOD RISK	
27.001	178	5.937	1.639	0.000	0.43	148.0	FLOOD RISK	
21.008	176	5.921	1.723	0.000	0.70	1073.2	SURCHARGED	
8.010	161	5.850	1.792	0.000	1.77	3595.2	FLOOD RISK	
8.011	179	5.368	1.451	24.039	1.75	3676.5	FLOOD	1
28.000	180	5.054	1.052	0.000	0.93	667.3	SURCHARGED	
28.001	181	5.016	1.109	0.000	0.73	594.7	SURCHARGED	
28.002	182	4.961	1.324	0.000	0.51	422.9	SURCHARGED	
1.013	127	4.883	1.133	0.000	1.66	5914.9	FLOOD RISK	
1.014	183	4.471	2.517	0.000	0.63	23.5	FLOOD RISK	

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JNP Group		Page 1
3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 2 Southern Network	
Date 13/02/2020 12:40 File C85228 SW Network 2 Sou...	Designed by IS Checked by AMc	
Micro Drainage Network 2018.1.1		

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for JNP Surface Water Network 2 - Southern Parcel Rev D
2020.02.03

Pipe Sizes Standard Manhole Sizes STANDARD

FEH Rainfall Model

Return Period (years)	100
FEH Rainfall Version	2013
Site Location GB 500450 103100 TQ 00450 03100	
Data Type	Catchment
Maximum Rainfall (mm/hr)	50
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	0.750
PIMP (%)	100
Add Flow / Climate Change (%)	40
Minimum Backdrop Height (m)	0.000
Maximum Backdrop Height (m)	0.000
Min Design Depth for Optimisation (m)	1.200
Min Vel for Auto Design only (m/s)	1.00
Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for JNP Surface Water Network 2 - Southern Parcel Rev D
2020.02.03

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	2.885	4-8	8.898	8-12	2.457	12-16	0.040

Total Area Contributing (ha) = 14.280

Total Pipe Volume (m³) = 1762.789

Network Design Table for JNP Surface Water Network 2 - Southern Parcel Rev D
2020.02.03

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	44.108	0.110	400.0	0.237	5.00	0.0	0.600	o	600	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	5.61	6.050	0.237	0.0	0.0	12.8	1.21	342.5	44.9

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JNP Group										Page 2	
3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP					Ford Airfield System 2 Southern Network						
Date 13/02/2020 12:40 File C85228 SW Network 2 Sou...					Designed by IS Checked by AMc						
Micro Drainage					Network 2018.1.1						
Network Design Table for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03											
PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
2.000	35.452	0.089	400.0	0.110	5.00	0.0	0.600	o	600	Pipe/Conduit	
1.001	71.950	0.144	500.0	0.141	0.00	0.0	0.600	o	750	Pipe/Conduit	
3.000	45.173	0.151	300.0	0.117	5.00	0.0	0.600	o	450	Pipe/Conduit	
1.002	93.005	0.186	500.0	0.409	0.00	0.0	0.600	o	900	Pipe/Conduit	
4.000	92.846	0.186	500.0	0.369	5.00	0.0	0.600	o	900	Pipe/Conduit	
4.001	62.193	0.124	500.0	1.521	0.00	0.0	0.600	o	900	Pipe/Conduit	
1.003	56.802	0.114	500.0	0.182	0.00	0.0	0.600	o	1050	Pipe/Conduit	
1.004	24.936	0.050	500.0	0.424	0.00	0.0	0.600	o	1200	Pipe/Conduit	
1.005	39.790	0.080	500.0	0.000	0.00	0.0	0.600	o	1200	Pipe/Conduit	
5.000	29.276	0.146	200.0	0.069	5.00	0.0	0.600	o	300	Pipe/Conduit	
5.001	98.200	0.327	300.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
5.002	40.351	0.101	400.0	0.215	0.00	0.0	0.600	o	600	Pipe/Conduit	
1.006	84.172	0.168	500.0	0.503	0.00	0.0	0.600	o	1200	Pipe/Conduit	
Network Results Table											
PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	
2.000	50.00	5.49	6.029	0.110	0.0	0.0	6.0	1.21	342.5	20.9	
1.001	50.00	6.57	5.790	0.488	0.0	0.0	26.4	1.24	549.9	92.5	
3.000	50.00	5.64	6.097	0.117	0.0	0.0	6.3	1.17	185.8	22.2	
1.002	50.00	7.68	5.496	1.014	0.0	0.0	54.9	1.39	887.0	192.2	
4.000	50.00	6.11	5.620	0.369	0.0	0.0	20.0	1.39	887.1	70.0	
4.001	50.00	6.85	5.434	1.890	0.0	0.0	102.4	1.39	887.1	358.3	
1.003	50.00	8.30	5.160	3.086	0.0	0.0	167.2	1.53	1328.5	585.0	
1.004	50.00	8.55	4.896	3.510	0.0	0.0	190.1	1.67	1884.5	665.4	
1.005	50.00	8.95	4.846	3.510	0.0	0.0	190.1	1.67	1884.5	665.4	
5.000	50.00	5.44	6.240	0.069	0.0	0.0	3.7	1.11	78.3	13.1	
5.001	50.00	6.84	5.944	0.069	0.0	0.0	3.7	1.17	185.8	13.1	
5.002	50.00	7.40	5.467	0.284	0.0	0.0	15.4	1.21	342.5	53.8	
1.006	50.00	9.79	4.766	4.297	0.0	0.0	232.7	1.67	1884.5	814.6	
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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP					Ford Airfield System 2 Southern Network						
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Micro Drainage					Network 2018.1.1						
Network Design Table for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03											
PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.007	46.970	0.094	500.0	0.259	0.00	0.0	0.600	o	1200	Pipe/Conduit	
1.008	152.180	0.404	377.0	0.450	0.00	0.0	0.600	o	1200	Pipe/Conduit	
6.000	61.301	0.204	300.0	0.196	5.00	0.0	0.600	o	450	Pipe/Conduit	
6.001	21.126	0.070	300.0	0.143	0.00	0.0	0.600	o	450	Pipe/Conduit	
6.002	47.304	0.158	300.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
6.003	43.954	0.147	300.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
6.004	5.796	0.019	300.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
7.000	5.403	0.018	300.0	0.076	5.00	0.0	0.600	o	450	Pipe/Conduit	
7.001	21.495	0.072	300.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
7.002	39.374	0.131	300.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
7.003	66.932	0.223	300.0	0.151	0.00	0.0	0.600	o	450	Pipe/Conduit	
7.004	9.913	0.033	300.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
6.005	61.147	0.153	400.0	0.200	0.00	0.0	0.600	o	600	Pipe/Conduit	
6.006	92.312	0.231	400.0	0.314	0.00	0.0	0.600	o	600	Pipe/Conduit	
8.000	75.944	0.253	300.0	0.116	5.00	0.0	0.600	o	300	Pipe/Conduit	
9.000	20.066	0.067	300.0	0.081	5.00	0.0	0.600	o	300	Pipe/Conduit	
Network Results Table											
PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	
1.007	50.00	10.26	4.598	4.556	0.0	0.0	246.8	1.67	1884.5	863.7	
1.008	50.00	11.58	4.504	5.006	0.0	0.0	271.1	1.92	2172.4	949.0	
6.000	50.00	5.87	6.467	0.196	0.0	0.0	10.6	1.17	185.8	37.2	
6.001	50.00	6.18	6.263	0.339	0.0	0.0	18.4	1.17	185.8	64.3	
6.002	50.00	6.85	6.193	0.339	0.0	0.0	18.4	1.17	185.8	64.3	
6.003	50.00	7.48	6.035	0.339	0.0	0.0	18.4	1.17	185.8	64.3	
6.004	50.00	7.56	5.888	0.339	0.0	0.0	18.4	1.17	185.8	64.3	
7.000	50.00	5.08	6.346	0.076	0.0	0.0	4.1	1.17	185.8	14.4	
7.001	50.00	5.38	6.328	0.076	0.0	0.0	4.1	1.17	185.8	14.4	
7.002	50.00	5.95	6.256	0.076	0.0	0.0	4.1	1.17	185.8	14.4	
7.003	50.00	6.90	6.125	0.227	0.0	0.0	12.3	1.17	185.8	43.0	
7.004	50.00	7.04	5.902	0.227	0.0	0.0	12.3	1.17	185.8	43.0	
6.005	50.00	8.40	5.719	0.766	0.0	0.0	41.5	1.21	342.5	145.2	
6.006	50.00	9.67	5.566	1.080	0.0	0.0	58.5	1.21	342.5	204.7	
8.000	50.00	6.40	6.051	0.116	0.0	0.0	6.3	0.90	63.8	22.0	
9.000	50.00	5.37	5.938	0.081	0.0	0.0	4.4	0.90	63.8	15.4	
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Micro Drainage					Network 2018.1.1						
Network Design Table for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03											
PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
9.001	21.835	0.073	300.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
8.001	65.054	0.163	400.0	0.285	0.00	0.0	0.600	o	600	Pipe/Conduit	
6.007	55.098	0.110	500.0	0.511	0.00	0.0	0.600	o	750	Pipe/Conduit	
10.000	109.389	0.365	300.0	0.249	5.00	0.0	0.600	o	450	Pipe/Conduit	
10.001	16.771	0.042	400.0	0.288	0.00	0.0	0.600	o	600	Pipe/Conduit	
6.008	46.882	0.094	500.0	0.000	0.00	0.0	0.600	o	900	Pipe/Conduit	
6.009	14.925	0.030	500.0	0.565	0.00	0.0	0.600	o	1050	Pipe/Conduit	
11.000	21.777	0.073	300.0	0.164	5.00	0.0	0.600	o	450	Pipe/Conduit	
11.001	66.672	0.222	300.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
6.010	53.809	0.108	500.0	0.156	0.00	0.0	0.600	o	1050	Pipe/Conduit	
6.011	96.483	0.293	329.0	0.547	0.00	0.0	0.600	o	1200	Pipe/Conduit	
12.000	44.400	0.148	300.0	0.118	5.00	0.0	0.600	o	300	Pipe/Conduit	
13.000	35.411	0.118	300.0	0.125	5.00	0.0	0.600	o	450	Pipe/Conduit	
Network Results Table											
PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	
9.001	50.00	5.68	5.721	0.081	0.0	0.0	4.4	1.17	185.8	15.4	
8.001	50.00	7.30	5.498	0.482	0.0	0.0	26.1	1.21	342.5	91.4	
6.007	50.00	10.41	5.185	2.073	0.0	0.0	112.3	1.24	549.9	393.0	
10.000	50.00	6.56	5.782	0.249	0.0	0.0	13.5	1.17	185.8	47.2	
10.001	50.00	6.79	5.267	0.537	0.0	0.0	29.1	1.21	342.5	101.8	
6.008	50.00	10.97	4.925	2.610	0.0	0.0	141.4	1.39	887.1	494.8	
6.009	50.00	11.13	4.681	3.175	0.0	0.0	172.0	1.53	1328.5	601.9	
11.000	50.00	5.31	5.546	0.164	0.0	0.0	8.9	1.17	185.8	31.1	
11.001	50.00	6.26	5.473	0.164	0.0	0.0	8.9	1.17	185.8	31.1	
6.010	50.00	11.72	4.651	3.495	0.0	0.0	189.3	1.53	1328.5	662.6	
6.011	50.00	12.50	4.393	4.042	0.0	0.0	218.9	2.06	2326.5	766.3	
12.000	50.00	5.82	5.954	0.118	0.0	0.0	6.4	0.90	63.8	22.4	
13.000	50.00	5.51	5.774	0.125	0.0	0.0	6.8	1.17	185.8	23.7	
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Micro Drainage						Network 2018.1.1						
Network Design Table for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03												
PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design	
12.001	93.560	0.312	300.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit		
14.000	16.181	0.054	300.0	0.158	5.00	0.0	0.600	o	600	Pipe/Conduit		
14.001	30.832	0.062	500.0	0.000	0.00	0.0	0.600	o	750	Pipe/Conduit		
12.002	51.324	0.103	500.0	0.365	0.00	0.0	0.600	o	750	Pipe/Conduit		
15.000	31.268	0.156	200.0	0.072	5.00	0.0	0.600	o	225	Pipe/Conduit		
15.001	58.869	0.294	200.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit		
16.000	43.992	0.147	300.0	0.088	5.00	0.0	0.600	o	300	Pipe/Conduit		
15.002	91.395	0.305	300.0	0.199	0.00	0.0	0.600	o	450	Pipe/Conduit		
12.003	19.607	0.039	500.0	0.329	0.00	0.0	0.600	o	750	Pipe/Conduit		
12.004	36.367	0.073	500.0	0.158	0.00	0.0	0.600	o	750	Pipe/Conduit		
17.000	67.408	0.225	300.0	0.150	5.00	0.0	0.600	o	450	Pipe/Conduit		
18.000	31.662	0.106	300.0	0.094	5.00	0.0	0.600	o	300	Pipe/Conduit		
Network Results Table												
PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)		
12.001	50.00	7.15	5.656	0.243	0.0	0.0	13.2	1.17	185.8	46.1		
14.000	50.00	5.19	5.310	0.158	0.0	0.0	8.6	1.40	396.0	30.0		
14.001	50.00	5.61	5.106	0.158	0.0	0.0	8.6	1.24	549.9	30.0		
12.002	50.00	7.84	5.044	0.766	0.0	0.0	41.5	1.24	549.9	145.2		
15.000	50.00	5.57	6.166	0.072	0.0	0.0	3.9	0.92	36.6	13.6		
15.001	50.00	6.63	6.010	0.072	0.0	0.0	3.9	0.92	36.6	13.6		
16.000	50.00	5.81	5.843	0.088	0.0	0.0	4.8	0.90	63.8	16.7		
15.002	50.00	7.93	5.546	0.359	0.0	0.0	19.4	1.17	185.8	68.1		
12.003	50.00	8.20	4.941	1.454	0.0	0.0	78.8	1.24	549.9	275.6		
12.004	50.00	8.68	4.902	1.612	0.0	0.0	87.3	1.24	549.9	305.6		
17.000	50.00	5.96	5.659	0.150	0.0	0.0	8.1	1.17	185.8	28.4		
18.000	50.00	5.58	5.690	0.094	0.0	0.0	5.1	0.90	63.8	17.8		
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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP					Ford Airfield System 2 Southern Network						
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Micro Drainage					Network 2018.1.1						
Network Design Table for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03											
PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
17.001	59.991	0.120	500.0	0.132	0.00	0.0	0.600	o	750	Pipe/Conduit	
17.002	92.718	0.185	500.0	0.211	0.00	0.0	0.600	o	750	Pipe/Conduit	
19.000	42.425	0.141	300.0	0.088	5.00	0.0	0.600	o	300	Pipe/Conduit	
12.005	60.006	0.120	500.0	0.417	0.00	0.0	0.600	o	1050	Pipe/Conduit	
12.006	104.721	0.309	339.0	0.420	0.00	0.0	0.600	o	1050	Pipe/Conduit	
20.000	23.223	0.077	300.0	0.081	5.00	0.0	0.600	o	450	Pipe/Conduit	
20.001	62.407	0.156	400.0	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit	
21.000	16.883	0.056	300.0	0.123	5.00	0.0	0.600	o	450	Pipe/Conduit	
21.001	20.833	0.069	300.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
21.002	25.903	0.086	300.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
21.003	44.209	0.111	400.0	0.110	0.00	0.0	0.600	o	600	Pipe/Conduit	
20.002	59.022	0.148	400.0	0.164	0.00	0.0	0.600	o	600	Pipe/Conduit	
20.003	99.499	0.249	400.0	0.249	0.00	0.0	0.600	o	600	Pipe/Conduit	
22.000	85.219	0.284	300.0	0.196	5.00	0.0	0.600	o	450	Pipe/Conduit	
Network Results Table											
PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	
17.001	50.00	6.76	5.134	0.376	0.0	0.0	20.4	1.24	549.9	71.3	
17.002	50.00	8.01	5.014	0.587	0.0	0.0	31.8	1.24	549.9	111.3	
19.000	50.00	5.78	5.420	0.088	0.0	0.0	4.8	0.90	63.8	16.7	
12.005	50.00	9.34	4.529	2.704	0.0	0.0	146.5	1.53	1328.5	512.6	
12.006	50.00	10.27	4.409	3.124	0.0	0.0	169.2	1.87	1615.8	592.2	
20.000	50.00	5.33	5.587	0.081	0.0	0.0	4.4	1.17	185.8	15.4	
20.001	50.00	6.19	5.360	0.081	0.0	0.0	4.4	1.21	342.5	15.4	
21.000	50.00	5.24	5.676	0.123	0.0	0.0	6.7	1.17	185.8	23.3	
21.001	50.00	5.54	5.620	0.123	0.0	0.0	6.7	1.17	185.8	23.3	
21.002	50.00	5.91	5.551	0.123	0.0	0.0	6.7	1.17	185.8	23.3	
21.003	50.00	6.52	5.315	0.233	0.0	0.0	12.6	1.21	342.5	44.2	
20.002	50.00	7.33	5.204	0.478	0.0	0.0	25.9	1.21	342.5	90.6	
20.003	50.00	8.70	5.056	0.727	0.0	0.0	39.4	1.21	342.5	137.8	
22.000	50.00	6.22	5.530	0.196	0.0	0.0	10.6	1.17	185.8	37.2	
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Network Design Table for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03											
PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
22.001	54.240	0.136	400.0	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit	
23.000	33.132	0.110	300.0	0.155	5.00	0.0	0.600	o	450	Pipe/Conduit	
23.001	22.060	0.074	300.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
23.002	7.470	0.019	400.0	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit	
22.002	61.064	0.153	400.0	0.315	0.00	0.0	0.600	o	600	Pipe/Conduit	
20.004	58.745	0.117	500.0	0.355	0.00	0.0	0.600	o	900	Pipe/Conduit	
20.005	94.892	0.290	327.0	0.360	0.00	0.0	0.600	o	900	Pipe/Conduit	
1.009	53.608	0.357	150.0	0.000	0.00	0.0	0.600	o	1350	Pipe/Conduit	
1.010	22.647	0.151	150.0	0.000	0.00	0.0	0.600	o	1350	Pipe/Conduit	
Network Results Table											
PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	
22.001	50.00	6.96	5.096	0.196	0.0	0.0	10.6	1.21	342.5	37.2	
23.000	50.00	5.47	5.313	0.155	0.0	0.0	8.4	1.17	185.8	29.4	
23.001	50.00	5.79	5.203	0.155	0.0	0.0	8.4	1.17	185.8	29.4	
23.002	50.00	5.89	4.979	0.155	0.0	0.0	8.4	1.21	342.5	29.4	
22.002	50.00	7.80	4.960	0.666	0.0	0.0	36.1	1.21	342.5	126.3	
20.004	50.00	9.40	4.507	1.748	0.0	0.0	94.7	1.39	887.1	331.4	
20.005	50.00	10.31	4.390	2.108	0.0	0.0	114.2	1.73	1098.8	399.6	
1.009	50.00	12.77	4.100	14.280	0.0	0.0	773.5	3.28	4697.2	2707.2	
1.010	50.00	12.89	3.743	14.280	0.0	0.0	773.5	3.28	4697.2	2707.2	
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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP				Ford Airfield System 2 Southern Network							
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Micro Drainage				Network 2018.1.1							
<u>Manhole Schedules for JNP Surface Water Network 2 - Southern Parcel Rev D</u> <u>2020.02.03</u>											
MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN Invert Level (m)	Pipes In Diameter (mm)			
1	7.655	1.605	Open Manhole	1500	1.000	6.050	600				
3	7.600	1.571	Open Manhole	1500	2.000	6.029	600				
2	7.652	1.862	Open Manhole	1800	1.001	5.790	750	1.000	5.940	600	
								2.000	5.940	600	
5	7.699	1.602	Open Manhole	1500	3.000	6.097	450				
4	8.263	2.767	Open Manhole	1800	1.002	5.496	900	1.001	5.646	750	
								3.000	5.946	450	
7	7.597	1.977	Open Manhole	1800	4.000	5.620	900				
8	8.005	2.571	Open Manhole	1800	4.001	5.434	900	4.000	5.434	900	
6	7.785	2.625	Open Manhole	2100	1.003	5.160	1050	1.002	5.310	900	
								4.001	5.310	900	
9	7.495	2.599	Open Manhole	2100	1.004	4.896	1200	1.003	5.046	1050	
10	7.119	2.273	Open Manhole	2100	1.005	4.846	1200	1.004	4.846	1200	
12	8.053	1.813	Open Manhole	1200	5.000	6.240	300				
13	8.090	2.146	Open Manhole	1500	5.001	5.944	450	5.000	6.094	300	
14	7.140	1.673	Open Manhole	1500	5.002	5.467	600	5.001	5.617	450	
11	7.254	2.488	Open Manhole	2100	1.006	4.766	1200	1.005	4.766	1200	
								5.002	5.366	600	
15	7.293	2.695	Open Manhole	2100	1.007	4.598	1200	1.006	4.598	1200	
16	7.199	2.695	Open Manhole	2100	1.008	4.504	1200	1.007	4.504	1200	
18	8.014	1.547	Open Manhole	1500	6.000	6.467	450				
19	7.878	1.615	Open Manhole	1500	6.001	6.263	450	6.000	6.263	450	
20	7.711	1.518	Open Manhole	1500	6.002	6.193	450	6.001	6.193	450	
21	7.616	1.581	Open Manhole	1500	6.003	6.035	450	6.002	6.035	450	
22	7.692	1.804	Open Manhole	1500	6.004	5.888	450	6.003	5.888	450	
24	7.684	1.338	Open Manhole	1500	7.000	6.346	450				
25	7.746	1.418	Open Manhole	1500	7.001	6.328	450	7.000	6.328	450	
26	7.594	1.338	Open Manhole	1500	7.002	6.256	450	7.001	6.256	450	
27	7.852	1.727	Open Manhole	1500	7.003	6.125	450	7.002	6.125	450	
28	7.469	1.567	Open Manhole	1500	7.004	5.902	450	7.003	5.902	450	
23	7.619	1.900	Open Manhole	1500	6.005	5.719	600	6.004	5.869	450	
								7.004	5.869	450	
29	7.105	1.539	Open Manhole	1500	6.006	5.566	600	6.005	5.566	600	
31	7.238	1.187	Open Manhole	1200	8.000	6.051	300				
33	7.509	1.571	Open Manhole	1200	9.000	5.938	300				
34	7.262	1.541	Open Manhole	1500	9.001	5.721	450	9.000	5.871	300	
32	7.017	1.519	Open Manhole	1500	8.001	5.498	600	8.000	5.798	300	
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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 2 Southern Network	
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Micro Drainage Network 2018.1.1		

Manhole Schedules for JNP Surface Water Network 2 - Southern Parcel Rev D
2020.02.03

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
30	6.929	1.744	Open Manhole	1800	6.007	5.185	750	9.001 6.006 8.001	5.648 5.335 5.335	450 600 600	
36	8.095	2.313	Open Manhole	1500	10.000	5.782	450				
37	6.952	1.685	Open Manhole	1500	10.001	5.267	600	10.000	5.417	450	
35	6.750	1.825	Open Manhole	1800	6.008	4.925	900	6.007 10.001	5.075 5.225	750 600	
38	6.806	2.125	Open Manhole	2100	6.009	4.681	1050	6.008	4.831	900	
40	7.369	1.823	Open Manhole	1500	11.000	5.546	450				
41	7.013	1.540	Open Manhole	1500	11.001	5.473	450	11.000	5.473	450	
39	6.620	1.969	Open Manhole	2100	6.010	4.651	1050	6.009 11.001	4.651 5.251	1050 450	
42	6.572	2.179	Open Manhole	2100	6.011	4.393	1200	6.010	4.543	1050	
43	7.324	1.370	Open Manhole	1200	12.000	5.954	300				
45	7.144	1.370	Open Manhole	1500	13.000	5.774	450				
44	7.343	1.687	Open Manhole	1500	12.001	5.656	450	12.000 13.000	5.806 5.656	300 450	
47	6.752	1.442	Open Manhole	1500	14.000	5.310	600				
48	6.808	1.702	Open Manhole	1800	14.001	5.106	750	14.000	5.256	600	
46	6.795	1.751	Open Manhole	1800	12.002	5.044	750	12.001 14.001	5.344 5.044	450 750	
50	7.568	1.402	Open Manhole	1200	15.000	6.166	225				
51	7.686	1.676	Open Manhole	1200	15.001	6.010	225	15.000	6.010	225	
53	7.424	1.581	Open Manhole	1200	16.000	5.843	300				
52	7.563	2.017	Open Manhole	1500	15.002	5.546	450	15.001 16.000	5.716 5.696	225 300	
49	6.779	1.838	Open Manhole	1800	12.003	4.941	750	12.002 15.002	4.941 5.241	750 450	
54	6.925	2.023	Open Manhole	1800	12.004	4.902	750	12.003	4.902	750	
56	7.350	1.691	Open Manhole	1500	17.000	5.659	450				
58	7.500	1.810	Open Manhole	1200	18.000	5.690	300				
57	7.633	2.499	Open Manhole	1800	17.001	5.134	750	17.000 18.000	5.434 5.584	450 300	
59	7.694	2.680	Open Manhole	1800	17.002	5.014	750	17.001	5.014	750	
60	6.984	1.564	Open Manhole	1200	19.000	5.420	300				
55	7.419	2.890	Open Manhole	2100	12.005	4.529	1050	12.004 17.002	4.829 4.829	750 750	

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 2 Southern Network	
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Micro Drainage	Network 2018.1.1	

Manhole Schedules for JNP Surface Water Network 2 - Southern Parcel Rev D
2020.02.03

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
61	6.623	2.214	Open Manhole	2100	12.006	4.409	1050	12.005	4.409	1050	
62	7.124	1.537	Open Manhole	1500	20.000	5.587	450				
63	7.412	2.052	Open Manhole	1500	20.001	5.360	600	20.000	5.510	450	
65	7.799	2.123	Open Manhole	1500	21.000	5.676	450				
66	7.587	1.967	Open Manhole	1500	21.001	5.620	450	21.000	5.620	450	
67	7.321	1.770	Open Manhole	1500	21.002	5.551	450	21.001	5.551	450	
68	6.990	1.675	Open Manhole	1500	21.003	5.315	600	21.002	5.465	450	
64	7.147	1.943	Open Manhole	1500	20.002	5.204	600	20.001	5.204	600	
								21.003	5.204	600	
69	7.161	2.105	Open Manhole	1500	20.003	5.056	600	20.002	5.056	600	
71	7.050	1.520	Open Manhole	1500	22.000	5.530	450				
72	6.750	1.654	Open Manhole	1500	22.001	5.096	600	22.000	5.246	450	
74	6.966	1.653	Open Manhole	1500	23.000	5.313	450				
75	7.040	1.837	Open Manhole	1500	23.001	5.203	450	23.000	5.203	450	
76	6.768	1.789	Open Manhole	1500	23.002	4.979	600	23.001	5.129	450	
73	6.650	1.690	Open Manhole	1500	22.002	4.960	600	22.001	4.960	600	
								23.002	4.960	600	
70	6.500	1.993	Open Manhole	1800	20.004	4.507	900	20.003	4.807	600	
								22.002	4.807	600	
77	6.500	2.110	Open Manhole	1800	20.005	4.390	900	20.004	4.390	900	
17	6.350	2.250	Open Manhole	2400	1.009	4.100	1350	1.008	4.100	1200	
								6.011	4.100	1200	
								12.006	4.100	1050	
								20.005	4.100	900	
78	6.554	2.811	Open Manhole	2400	1.010	3.743	1350	1.009	3.743	1350	
79	6.811	3.219	Open Manhole	3000		OUTFALL		1.010	3.592	1350	

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 2 Southern Network	
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Micro Drainage	Network 2018.1.1	

PIPELINE SCHEDULES for JNP Surface Water Network 2 - Southern Parcel Rev D
2020.02.03

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., (mm)	L*W
1.000	o	600	1	7.655	6.050	1.005	Open Manhole		1500
2.000	o	600	3	7.600	6.029	0.971	Open Manhole		1500
1.001	o	750	2	7.652	5.790	1.112	Open Manhole		1800
3.000	o	450	5	7.699	6.097	1.152	Open Manhole		1500
1.002	o	900	4	8.263	5.496	1.867	Open Manhole		1800
4.000	o	900	7	7.597	5.620	1.077	Open Manhole		1800
4.001	o	900	8	8.005	5.434	1.671	Open Manhole		1800
1.003	o	1050	6	7.785	5.160	1.575	Open Manhole		2100
1.004	o	1200	9	7.495	4.896	1.399	Open Manhole		2100
1.005	o	1200	10	7.119	4.846	1.073	Open Manhole		2100
5.000	o	300	12	8.053	6.240	1.513	Open Manhole		1200
5.001	o	450	13	8.090	5.944	1.696	Open Manhole		1500
5.002	o	600	14	7.140	5.467	1.073	Open Manhole		1500

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., (mm)	L*W
1.000	44.108	400.0	2	7.652	5.940	1.112	Open Manhole		1800
2.000	35.452	400.0	2	7.652	5.940	1.112	Open Manhole		1800
1.001	71.950	500.0	4	8.263	5.646	1.867	Open Manhole		1800
3.000	45.173	300.0	4	8.263	5.946	1.867	Open Manhole		1800
1.002	93.005	500.0	6	7.785	5.310	1.575	Open Manhole		2100
4.000	92.846	500.0	8	8.005	5.434	1.671	Open Manhole		1800
4.001	62.193	500.0	6	7.785	5.310	1.575	Open Manhole		2100
1.003	56.802	500.0	9	7.495	5.046	1.399	Open Manhole		2100
1.004	24.936	500.0	10	7.119	4.846	1.073	Open Manhole		2100
1.005	39.790	500.0	11	7.254	4.766	1.288	Open Manhole		2100
5.000	29.276	200.0	13	8.090	6.094	1.696	Open Manhole		1500
5.001	98.200	300.0	14	7.140	5.617	1.073	Open Manhole		1500
5.002	40.351	400.0	11	7.254	5.366	1.288	Open Manhole		2100

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP				Ford Airfield System 2 Southern Network					
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Micro Drainage				Network 2018.1.1					
PIPELINE SCHEDULES for JNP Surface Water Network 2 - Southern Parcel Rev D									
2020.02.03									
Upstream Manhole									
PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., (mm)	L*W
1.006	o	1200	11	7.254	4.766	1.288	Open Manhole		2100
1.007	o	1200	15	7.293	4.598	1.495	Open Manhole		2100
1.008	o	1200	16	7.199	4.504	1.495	Open Manhole		2100
6.000	o	450	18	8.014	6.467	1.097	Open Manhole		1500
6.001	o	450	19	7.878	6.263	1.165	Open Manhole		1500
6.002	o	450	20	7.711	6.193	1.068	Open Manhole		1500
6.003	o	450	21	7.616	6.035	1.131	Open Manhole		1500
6.004	o	450	22	7.692	5.888	1.354	Open Manhole		1500
7.000	o	450	24	7.684	6.346	0.888	Open Manhole		1500
7.001	o	450	25	7.746	6.328	0.968	Open Manhole		1500
7.002	o	450	26	7.594	6.256	0.888	Open Manhole		1500
7.003	o	450	27	7.852	6.125	1.277	Open Manhole		1500
7.004	o	450	28	7.469	5.902	1.117	Open Manhole		1500
6.005	o	600	23	7.619	5.719	1.300	Open Manhole		1500
6.006	o	600	29	7.105	5.566	0.939	Open Manhole		1500
Downstream Manhole									
PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., (mm)	L*W
1.006	84.172	500.0	15	7.293	4.598	1.495	Open Manhole		2100
1.007	46.970	500.0	16	7.199	4.504	1.495	Open Manhole		2100
1.008	152.180	377.0	17	6.350	4.100	1.050	Open Manhole		2400
6.000	61.301	300.0	19	7.878	6.263	1.165	Open Manhole		1500
6.001	21.126	300.0	20	7.711	6.193	1.068	Open Manhole		1500
6.002	47.304	300.0	21	7.616	6.035	1.131	Open Manhole		1500
6.003	43.954	300.0	22	7.692	5.888	1.354	Open Manhole		1500
6.004	5.796	300.0	23	7.619	5.869	1.300	Open Manhole		1500
7.000	5.403	300.0	25	7.746	6.328	0.968	Open Manhole		1500
7.001	21.495	300.0	26	7.594	6.256	0.888	Open Manhole		1500
7.002	39.374	300.0	27	7.852	6.125	1.277	Open Manhole		1500
7.003	66.932	300.0	28	7.469	5.902	1.117	Open Manhole		1500
7.004	9.913	300.0	23	7.619	5.869	1.300	Open Manhole		1500
6.005	61.147	400.0	29	7.105	5.566	0.939	Open Manhole		1500
6.006	92.312	400.0	30	6.929	5.335	0.994	Open Manhole		1800
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Micro Drainage		Network 2018.1.1						
PIPELINE SCHEDULES for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03								
Upstream Manhole								
PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
8.000	o	300	31	7.238	6.051	0.887	Open Manhole	1200
9.000	o	300	33	7.509	5.938	1.271	Open Manhole	1200
9.001	o	450	34	7.262	5.721	1.091	Open Manhole	1500
8.001	o	600	32	7.017	5.498	0.919	Open Manhole	1500
6.007	o	750	30	6.929	5.185	0.994	Open Manhole	1800
10.000	o	450	36	8.095	5.782	1.863	Open Manhole	1500
10.001	o	600	37	6.952	5.267	1.085	Open Manhole	1500
6.008	o	900	35	6.750	4.925	0.925	Open Manhole	1800
6.009	o	1050	38	6.806	4.681	1.075	Open Manhole	2100
11.000	o	450	40	7.369	5.546	1.373	Open Manhole	1500
11.001	o	450	41	7.013	5.473	1.090	Open Manhole	1500
6.010	o	1050	39	6.620	4.651	0.919	Open Manhole	2100
6.011	o	1200	42	6.572	4.393	0.979	Open Manhole	2100
Downstream Manhole								
PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
8.000	75.944	300.0	32	7.017	5.798	0.919	Open Manhole	1500
9.000	20.066	300.0	34	7.262	5.871	1.091	Open Manhole	1500
9.001	21.835	300.0	32	7.017	5.648	0.919	Open Manhole	1500
8.001	65.054	400.0	30	6.929	5.335	0.994	Open Manhole	1800
6.007	55.098	500.0	35	6.750	5.075	0.925	Open Manhole	1800
10.000	109.389	300.0	37	6.952	5.417	1.085	Open Manhole	1500
10.001	16.771	400.0	35	6.750	5.225	0.925	Open Manhole	1800
6.008	46.882	500.0	38	6.806	4.831	1.075	Open Manhole	2100
6.009	14.925	500.0	39	6.620	4.651	0.919	Open Manhole	2100
11.000	21.777	300.0	41	7.013	5.473	1.090	Open Manhole	1500
11.001	66.672	300.0	39	6.620	5.251	0.919	Open Manhole	2100
6.010	53.809	500.0	42	6.572	4.543	0.979	Open Manhole	2100
6.011	96.483	329.0	17	6.350	4.100	1.050	Open Manhole	2400
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PIPELINE SCHEDULES for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03								
Upstream Manhole								
PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
12.000	o	300	43	7.324	5.954	1.070	Open Manhole	1200
13.000	o	450	45	7.144	5.774	0.920	Open Manhole	1500
12.001	o	450	44	7.343	5.656	1.237	Open Manhole	1500
14.000	o	600	47	6.752	5.310	0.842	Open Manhole	1500
14.001	o	750	48	6.808	5.106	0.952	Open Manhole	1800
12.002	o	750	46	6.795	5.044	1.001	Open Manhole	1800
15.000	o	225	50	7.568	6.166	1.177	Open Manhole	1200
15.001	o	225	51	7.686	6.010	1.451	Open Manhole	1200
16.000	o	300	53	7.424	5.843	1.281	Open Manhole	1200
15.002	o	450	52	7.563	5.546	1.567	Open Manhole	1500
12.003	o	750	49	6.779	4.941	1.088	Open Manhole	1800
Downstream Manhole								
PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
12.000	44.400	300.0	44	7.343	5.806	1.237	Open Manhole	1500
13.000	35.411	300.0	44	7.343	5.656	1.237	Open Manhole	1500
12.001	93.560	300.0	46	6.795	5.344	1.001	Open Manhole	1800
14.000	16.181	300.0	48	6.808	5.256	0.952	Open Manhole	1800
14.001	30.832	500.0	46	6.795	5.044	1.001	Open Manhole	1800
12.002	51.324	500.0	49	6.779	4.941	1.088	Open Manhole	1800
15.000	31.268	200.0	51	7.686	6.010	1.451	Open Manhole	1200
15.001	58.869	200.0	52	7.563	5.716	1.622	Open Manhole	1500
16.000	43.992	300.0	52	7.563	5.696	1.567	Open Manhole	1500
15.002	91.395	300.0	49	6.779	5.241	1.088	Open Manhole	1800
12.003	19.607	500.0	54	6.925	4.902	1.273	Open Manhole	1800
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JNP Group								Page 15	
3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP				Ford Airfield System 2 Southern Network					
Date 13/02/2020 12:40 File C85228 SW Network 2 Sou...				Designed by IS Checked by AMc					
Micro Drainage				Network 2018.1.1					
PIPELINE SCHEDULES for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03									
Upstream Manhole									
PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., (mm)	L*W
12.004	o	750	54	6.925	4.902	1.273	Open Manhole		1800
17.000	o	450	56	7.350	5.659	1.241	Open Manhole		1500
18.000	o	300	58	7.500	5.690	1.510	Open Manhole		1200
17.001	o	750	57	7.633	5.134	1.749	Open Manhole		1800
17.002	o	750	59	7.694	5.014	1.930	Open Manhole		1800
19.000	o	300	60	6.984	5.420	1.264	Open Manhole		1200
12.005	o	1050	55	7.419	4.529	1.840	Open Manhole		2100
12.006	o	1050	61	6.623	4.409	1.164	Open Manhole		2100
20.000	o	450	62	7.124	5.587	1.087	Open Manhole		1500
20.001	o	600	63	7.412	5.360	1.452	Open Manhole		1500
21.000	o	450	65	7.799	5.676	1.673	Open Manhole		1500
21.001	o	450	66	7.587	5.620	1.517	Open Manhole		1500
21.002	o	450	67	7.321	5.551	1.320	Open Manhole		1500
Downstream Manhole									
PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., (mm)	L*W
12.004	36.367	500.0	55	7.419	4.829	1.840	Open Manhole		2100
17.000	67.408	300.0	57	7.633	5.434	1.749	Open Manhole		1800
18.000	31.662	300.0	57	7.633	5.584	1.749	Open Manhole		1800
17.001	59.991	500.0	59	7.694	5.014	1.930	Open Manhole		1800
17.002	92.718	500.0	55	7.419	4.829	1.840	Open Manhole		2100
19.000	42.425	300.0	55	7.419	5.279	1.840	Open Manhole		2100
12.005	60.006	500.0	61	6.623	4.409	1.164	Open Manhole		2100
12.006	104.721	339.0	17	6.350	4.100	1.200	Open Manhole		2400
20.000	23.223	300.0	63	7.412	5.510	1.452	Open Manhole		1500
20.001	62.407	400.0	64	7.147	5.204	1.343	Open Manhole		1500
21.000	16.883	300.0	66	7.587	5.620	1.517	Open Manhole		1500
21.001	20.833	300.0	67	7.321	5.551	1.320	Open Manhole		1500
21.002	25.903	300.0	68	6.990	5.465	1.075	Open Manhole		1500
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JNP Group								Page 16	
3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP				Ford Airfield System 2 Southern Network					
Date 13/02/2020 12:40 File C85228 SW Network 2 Sou...				Designed by IS Checked by AMc					
Micro Drainage				Network 2018.1.1					
PIPELINE SCHEDULES for JNP Surface Water Network 2 - Southern Parcel Rev D									
2020.02.03									
Upstream Manhole									
PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)	
21.003	o	600	68	6.990	5.315	1.075	Open Manhole	1500	
20.002	o	600	64	7.147	5.204	1.343	Open Manhole	1500	
20.003	o	600	69	7.161	5.056	1.505	Open Manhole	1500	
22.000	o	450	71	7.050	5.530	1.070	Open Manhole	1500	
22.001	o	600	72	6.750	5.096	1.054	Open Manhole	1500	
23.000	o	450	74	6.966	5.313	1.203	Open Manhole	1500	
23.001	o	450	75	7.040	5.203	1.387	Open Manhole	1500	
23.002	o	600	76	6.768	4.979	1.189	Open Manhole	1500	
22.002	o	600	73	6.650	4.960	1.090	Open Manhole	1500	
20.004	o	900	70	6.500	4.507	1.093	Open Manhole	1800	
20.005	o	900	77	6.500	4.390	1.210	Open Manhole	1800	
1.009	o	1350	17	6.350	4.100	0.900	Open Manhole	2400	
1.010	o	1350	78	6.554	3.743	1.461	Open Manhole	2400	
Downstream Manhole									
PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)	
21.003	44.209	400.0	64	7.147	5.204	1.343	Open Manhole	1500	
20.002	59.022	400.0	69	7.161	5.056	1.505	Open Manhole	1500	
20.003	99.499	400.0	70	6.500	4.807	1.093	Open Manhole	1800	
22.000	85.219	300.0	72	6.750	5.246	1.054	Open Manhole	1500	
22.001	54.240	400.0	73	6.650	4.960	1.090	Open Manhole	1500	
23.000	33.132	300.0	75	7.040	5.203	1.387	Open Manhole	1500	
23.001	22.060	300.0	76	6.768	5.129	1.189	Open Manhole	1500	
23.002	7.470	400.0	73	6.650	4.960	1.090	Open Manhole	1500	
22.002	61.064	400.0	70	6.500	4.807	1.093	Open Manhole	1800	
20.004	58.745	500.0	77	6.500	4.390	1.210	Open Manhole	1800	
20.005	94.892	327.0	17	6.350	4.100	1.350	Open Manhole	2400	
1.009	53.608	150.0	78	6.554	3.743	1.461	Open Manhole	2400	
1.010	22.647	150.0	79	6.811	3.592	1.869	Open Manhole	3000	
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JNP Group				Page 17		
3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP				Ford Airfield System 2 Southern Network		
Date 13/02/2020 12:40 File C85228 SW Network 2 Sou...				Designed by IS Checked by AMc		
Micro Drainage				Network 2018.1.1		
Area Summary for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03						
Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.237	0.237	0.237
2.000	-	-	100	0.110	0.110	0.110
1.001	-	-	100	0.141	0.141	0.141
3.000	-	-	100	0.117	0.117	0.117
1.002	-	-	100	0.409	0.409	0.409
4.000	-	-	100	0.369	0.369	0.369
4.001	-	-	100	1.521	1.521	1.521
1.003	-	-	100	0.182	0.182	0.182
1.004	-	-	100	0.424	0.424	0.424
1.005	-	-	100	0.000	0.000	0.000
5.000	-	-	100	0.069	0.069	0.069
5.001	-	-	100	0.000	0.000	0.000
5.002	-	-	100	0.215	0.215	0.215
1.006	-	-	100	0.503	0.503	0.503
1.007	-	-	100	0.259	0.259	0.259
1.008	-	-	100	0.450	0.450	0.450
6.000	-	-	100	0.196	0.196	0.196
6.001	-	-	100	0.143	0.143	0.143
6.002	-	-	100	0.000	0.000	0.000
6.003	-	-	100	0.000	0.000	0.000
6.004	-	-	100	0.000	0.000	0.000
7.000	-	-	100	0.076	0.076	0.076
7.001	-	-	100	0.000	0.000	0.000
7.002	-	-	100	0.000	0.000	0.000
7.003	-	-	100	0.151	0.151	0.151
7.004	-	-	100	0.000	0.000	0.000
6.005	-	-	100	0.200	0.200	0.200
6.006	-	-	100	0.314	0.314	0.314
8.000	-	-	100	0.116	0.116	0.116
9.000	-	-	100	0.081	0.081	0.081
9.001	-	-	100	0.000	0.000	0.000
8.001	-	-	100	0.285	0.285	0.285
6.007	-	-	100	0.511	0.511	0.511
10.000	-	-	100	0.249	0.249	0.249
10.001	-	-	100	0.288	0.288	0.288
6.008	-	-	100	0.000	0.000	0.000
6.009	-	-	100	0.565	0.565	0.565
11.000	-	-	100	0.164	0.164	0.164
11.001	-	-	100	0.000	0.000	0.000
6.010	-	-	100	0.156	0.156	0.156
6.011	-	-	100	0.547	0.547	0.547
12.000	-	-	100	0.118	0.118	0.118
13.000	-	-	100	0.125	0.125	0.125
12.001	-	-	100	0.000	0.000	0.000
14.000	-	-	100	0.158	0.158	0.158
14.001	-	-	100	0.000	0.000	0.000
12.002	-	-	100	0.365	0.365	0.365
15.000	-	-	100	0.072	0.072	0.072
15.001	-	-	100	0.000	0.000	0.000
16.000	-	-	100	0.088	0.088	0.088
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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP		Ford Airfield System 2 Southern Network				
Date 13/02/2020 12:40 File C85228 SW Network 2 Sou...		Designed by IS Checked by AMc				
Micro Drainage		Network 2018.1.1				
Area Summary for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03						
Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
15.002	-	-	100	0.199	0.199	0.199
12.003	-	-	100	0.329	0.329	0.329
12.004	-	-	100	0.158	0.158	0.158
17.000	-	-	100	0.150	0.150	0.150
18.000	-	-	100	0.094	0.094	0.094
17.001	-	-	100	0.132	0.132	0.132
17.002	-	-	100	0.211	0.211	0.211
19.000	-	-	100	0.088	0.088	0.088
12.005	-	-	100	0.417	0.417	0.417
12.006	-	-	100	0.420	0.420	0.420
20.000	-	-	100	0.081	0.081	0.081
20.001	-	-	100	0.000	0.000	0.000
21.000	-	-	100	0.123	0.123	0.123
21.001	-	-	100	0.000	0.000	0.000
21.002	-	-	100	0.000	0.000	0.000
21.003	-	-	100	0.110	0.110	0.110
20.002	-	-	100	0.164	0.164	0.164
20.003	-	-	100	0.249	0.249	0.249
22.000	-	-	100	0.196	0.196	0.196
22.001	-	-	100	0.000	0.000	0.000
23.000	-	-	100	0.155	0.155	0.155
23.001	-	-	100	0.000	0.000	0.000
23.002	-	-	100	0.000	0.000	0.000
22.002	-	-	100	0.315	0.315	0.315
20.004	-	-	100	0.355	0.355	0.355
20.005	-	-	100	0.360	0.360	0.360
1.009	-	-	100	0.000	0.000	0.000
1.010	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				14.280	14.280	14.280
Free Flowing Outfall Details for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03						
Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.010	79	6.811	3.592	3.592	3000	0
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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 2 Southern Network																																									
Date 13/02/2020 12:40 File C85228 SW Network 2 Sou...	Designed by IS Checked by AMc																																									
Micro Drainage Network 2018.1.1																																										
<u>Simulation Criteria for JNP Surface Water Network 2 - Southern Parcel Rev</u> <u>D 2020.02.03</u>																																										
<table border="0"> <tr> <td>Volumetric Runoff Coeff</td> <td>0.750</td> <td>Additional Flow - % of Total Flow</td> <td>0.000</td> </tr> <tr> <td>Areal Reduction Factor</td> <td>1.000</td> <td>MADD Factor * 10m³/ha Storage</td> <td>0.000</td> </tr> <tr> <td>Hot Start (mins)</td> <td>0</td> <td>Inlet Coefficient</td> <td>0.800</td> </tr> <tr> <td>Hot Start Level (mm)</td> <td>0</td> <td>Flow per Person per Day (l/per/day)</td> <td>0.000</td> </tr> <tr> <td>Manhole Headloss Coeff (Global)</td> <td>0.500</td> <td>Run Time (mins)</td> <td>60</td> </tr> <tr> <td>Foul Sewage per hectare (l/s)</td> <td>0.000</td> <td>Output Interval (mins)</td> <td>1</td> </tr> <tr> <td colspan="4"> </td> </tr> <tr> <td>Number of Input Hydrographs</td> <td>0</td> <td>Number of Storage Structures</td> <td>1</td> </tr> <tr> <td>Number of Online Controls</td> <td>1</td> <td>Number of Time/Area Diagrams</td> <td>0</td> </tr> <tr> <td>Number of Offline Controls</td> <td>0</td> <td>Number of Real Time Controls</td> <td>0</td> </tr> </table>			Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000	Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	0.000	Hot Start (mins)	0	Inlet Coefficient	0.800	Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000	Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60	Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1					Number of Input Hydrographs	0	Number of Storage Structures	1	Number of Online Controls	1	Number of Time/Area Diagrams	0	Number of Offline Controls	0	Number of Real Time Controls	0
Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000																																							
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Number of Input Hydrographs	0	Number of Storage Structures	1																																							
Number of Online Controls	1	Number of Time/Area Diagrams	0																																							
Number of Offline Controls	0	Number of Real Time Controls	0																																							
<u>Synthetic Rainfall Details</u>																																										
<table border="0"> <tr> <td>Rainfall Model</td> <td>FEH</td> </tr> <tr> <td>Return Period (years)</td> <td>2</td> </tr> <tr> <td>FEH Rainfall Version</td> <td>2013</td> </tr> <tr> <td>Site Location</td> <td>GB 500450 103100 TQ 00450 03100</td> </tr> <tr> <td>Data Type</td> <td>Catchment</td> </tr> <tr> <td>Summer Storms</td> <td>Yes</td> </tr> <tr> <td>Winter Storms</td> <td>No</td> </tr> <tr> <td>Cv (Summer)</td> <td>0.750</td> </tr> <tr> <td>Cv (Winter)</td> <td>0.840</td> </tr> <tr> <td>Storm Duration (mins)</td> <td>30</td> </tr> </table>			Rainfall Model	FEH	Return Period (years)	2	FEH Rainfall Version	2013	Site Location	GB 500450 103100 TQ 00450 03100	Data Type	Catchment	Summer Storms	Yes	Winter Storms	No	Cv (Summer)	0.750	Cv (Winter)	0.840	Storm Duration (mins)	30																				
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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 2 Southern Network																																																																									
Date 13/02/2020 12:40 File C85228 SW Network 2 Sou...	Designed by IS Checked by AMc																																																																									
Micro Drainage Network 2018.1.1																																																																										
Online Controls for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03 Hydro-Brake® Optimum Manhole: 78, DS/PN: 1.010, Volume (m³): 86.0 Unit Reference MD-SHE-0156-1490-2279-1490 Design Head (m)2.279 Design Flow (l/s)14.9 Flush-Flo™Calculated ObjectiveMinimise upstream storage ApplicationSurface Sump AvailableYes Diameter (mm)156 Invert Level (m)3.743 Minimum Outlet Pipe Diameter (mm)225 Suggested Manhole Diameter (mm)1500 Control Points Head (m)Flow (l/s) Design Point (Calculated)2.27914.9 Flush-Flo™0.66814.9 Kick-Flo®1.37311.7 Mean Flow over Head Range-13.0 The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated <table><tr><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td></tr><tr><td>0.100</td><td>5.6</td><td>1.200</td><td>13.4</td><td>3.000</td><td>17.0</td><td>7.000</td><td>25.5</td></tr><tr><td>0.200</td><td>11.9</td><td>1.400</td><td>11.8</td><td>3.500</td><td>18.3</td><td>7.500</td><td>26.3</td></tr><tr><td>0.300</td><td>13.4</td><td>1.600</td><td>12.6</td><td>4.000</td><td>19.5</td><td>8.000</td><td>27.1</td></tr><tr><td>0.400</td><td>14.2</td><td>1.800</td><td>13.3</td><td>4.500</td><td>20.6</td><td>8.500</td><td>28.0</td></tr><tr><td>0.500</td><td>14.7</td><td>2.000</td><td>14.0</td><td>5.000</td><td>21.7</td><td>9.000</td><td>28.7</td></tr><tr><td>0.600</td><td>14.9</td><td>2.200</td><td>14.6</td><td>5.500</td><td>22.7</td><td>9.500</td><td>29.5</td></tr><tr><td>0.800</td><td>14.8</td><td>2.400</td><td>15.3</td><td>6.000</td><td>23.6</td><td></td><td></td></tr><tr><td>1.000</td><td>14.4</td><td>2.600</td><td>15.8</td><td>6.500</td><td>24.6</td><td></td><td></td></tr></table> ©1982-2018 Innovyze			Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	0.100	5.6	1.200	13.4	3.000	17.0	7.000	25.5	0.200	11.9	1.400	11.8	3.500	18.3	7.500	26.3	0.300	13.4	1.600	12.6	4.000	19.5	8.000	27.1	0.400	14.2	1.800	13.3	4.500	20.6	8.500	28.0	0.500	14.7	2.000	14.0	5.000	21.7	9.000	28.7	0.600	14.9	2.200	14.6	5.500	22.7	9.500	29.5	0.800	14.8	2.400	15.3	6.000	23.6			1.000	14.4	2.600	15.8	6.500	24.6		
Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)																																																																			
0.100	5.6	1.200	13.4	3.000	17.0	7.000	25.5																																																																			
0.200	11.9	1.400	11.8	3.500	18.3	7.500	26.3																																																																			
0.300	13.4	1.600	12.6	4.000	19.5	8.000	27.1																																																																			
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0.500	14.7	2.000	14.0	5.000	21.7	9.000	28.7																																																																			
0.600	14.9	2.200	14.6	5.500	22.7	9.500	29.5																																																																			
0.800	14.8	2.400	15.3	6.000	23.6																																																																					
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JNP Group		Page 21			
3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 2 Southern Network				
Date 13/02/2020 12:40 File C85228 SW Network 2 Sou...	Designed by IS Checked by AMc				
Micro Drainage Network 2018.1.1					
<u>Storage Structures for JNP Surface Water Network 2 - Southern Parcel Rev D</u> <u>2020.02.03</u>					
<u>Tank or Pond Manhole: 78, DS/PN: 1.010</u>					
Invert Level (m) 3.800					
Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	577.8	0.600	991.1	2.550	11504.0
0.300	684.6	0.601	5935.5		
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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 2 Southern Network
Date 13/02/2020 12:40 File C85228 SW Network 2 Sou...	Designed by IS Checked by AMc
Micro Drainage	Network 2018.1.1



2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 0.000
Hot Start Level (mm) 0 Inlet Coefficient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 1
Number of Online Controls 1 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH
FEH Rainfall Version 2013
Site Location GB 500450 103100 TQ 00450 03100
Data Type Catchment
Cv (Summer) 0.750
Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status OFF

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440, 10080
Return Period(s) (years) 2, 30, 100
Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	1	15 Winter	2	+0%					6.198
2.000	3	15 Winter	2	+0%					6.130
1.001	2	15 Winter	2	+0%	100/30 Winter				5.994
3.000	5	15 Winter	2	+0%	100/30 Winter				6.201
1.002	4	15 Winter	2	+0%	100/15 Winter				5.766
4.000	7	15 Winter	2	+0%	100/15 Winter				5.848
4.001	8	15 Winter	2	+0%	100/15 Summer				5.799
1.003	6	15 Winter	2	+0%	100/15 Summer				5.604
1.004	9	15 Winter	2	+0%	100/15 Winter				5.411
1.005	10	15 Winter	2	+0%	100/15 Winter				5.342
5.000	12	15 Winter	2	+0%					6.322
5.001	13	15 Winter	2	+0%					6.020
5.002	14	15 Winter	2	+0%	100/15 Winter				5.618
1.006	11	15 Winter	2	+0%	100/15 Winter				5.244
1.007	15	15 Winter	2	+0%	100/15 Summer				5.081
1.008	16	15 Winter	2	+0%	100/15 Summer				4.915
6.000	18	15 Winter	2	+0%	100/15 Summer				6.603

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 2 Southern Network	
Date 13/02/2020 12:40 File C85228 SW Network 2 Sou...	Designed by IS Checked by AMc	
Micro Drainage	Network 2018.1.1	

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03

PN	US/MH Name	Surcharged Flooded		Pipe		Status	Level Exceeded
		Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Flow (l/s)	
1.000	1	-0.452	0.000	0.14		40.7	OK
2.000	3	-0.499	0.000	0.07		18.8	OK
1.001	2	-0.546	0.000	0.16		76.5	OK
3.000	5	-0.346	0.000	0.12		20.1	OK
1.002	4	-0.630	0.000	0.18		143.3	OK
4.000	7	-0.672	0.000	0.07		58.8	OK
4.001	8	-0.535	0.000	0.34		252.7	OK
1.003	6	-0.606	0.000	0.37		394.9	OK
1.004	9	-0.685	0.000	0.35		426.1	OK
1.005	10	-0.704	0.000	0.31		420.5	OK
5.000	12	-0.218	0.000	0.16		11.7	OK
5.001	13	-0.374	0.000	0.07		11.9	OK
5.002	14	-0.449	0.000	0.14		41.4	OK
1.006	11	-0.722	0.000	0.30		477.3	OK
1.007	15	-0.717	0.000	0.34		480.9	OK
1.008	16	-0.789	0.000	0.25		480.1	OK
6.000	18	-0.314	0.000	0.19		32.4	OK

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP					Ford Airfield System 2 Southern Network				
Date 13/02/2020 12:40 File C85228 SW Network 2 Sou...					Designed by IS Checked by AMc				
Micro Drainage					Network 2018.1.1				
<u>2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)</u> <u>for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03</u>									
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
6.001	19	15 Winter	2	+0%	100/15 Summer				6.445
6.002	20	15 Winter	2	+0%	100/15 Summer				6.363
6.003	21	15 Winter	2	+0%	100/15 Summer				6.203
6.004	22	15 Winter	2	+0%	100/15 Summer				6.096
7.000	24	15 Winter	2	+0%	100/15 Winter				6.448
7.001	25	15 Winter	2	+0%	100/15 Winter				6.417
7.002	26	15 Winter	2	+0%	100/15 Summer				6.343
7.003	27	15 Winter	2	+0%	100/15 Summer				6.259
7.004	28	15 Winter	2	+0%	100/15 Summer				6.053
6.005	23	15 Winter	2	+0%	100/15 Summer				5.959
6.006	29	15 Winter	2	+0%	100/15 Summer				5.830
8.000	31	15 Winter	2	+0%	100/15 Summer				6.169
9.000	33	15 Winter	2	+0%	100/15 Summer				6.040
9.001	34	15 Winter	2	+0%	100/15 Summer				5.813
8.001	32	15 Winter	2	+0%	100/15 Summer				5.697
6.007	30	15 Winter	2	+0%	100/15 Summer				5.565
10.000	36	15 Winter	2	+0%	100/15 Winter				5.932
10.001	37	15 Winter	2	+0%	100/15 Summer				5.513
6.008	35	15 Winter	2	+0%	100/15 Summer				5.370
6.009	38	15 Winter	2	+0%	100/15 Summer				5.262
11.000	40	15 Winter	2	+0%	100/15 Winter				5.677
11.001	41	15 Winter	2	+0%	100/15 Winter				5.593
6.010	39	15 Winter	2	+0%	100/15 Summer				5.081
6.011	42	1440 Winter	2	+0%	100/15 Summer				4.856
12.000	43	15 Winter	2	+0%	100/15 Summer				6.075
13.000	45	15 Winter	2	+0%	100/15 Winter				5.886
12.001	44	15 Winter	2	+0%	100/15 Summer				5.803
14.000	47	15 Winter	2	+0%	100/15 Summer				5.435
14.001	48	15 Winter	2	+0%	100/15 Summer				5.390
12.002	46	15 Winter	2	+0%	100/15 Summer				5.388
15.000	50	15 Winter	2	+0%	100/15 Summer				6.260
15.001	51	15 Winter	2	+0%	100/15 Summer				6.101
16.000	53	15 Winter	2	+0%	100/15 Summer				5.946
15.002	52	15 Winter	2	+0%	100/15 Summer				5.719
12.003	49	15 Winter	2	+0%	100/15 Summer				5.343
12.004	54	15 Winter	2	+0%	100/15 Summer				5.265
17.000	56	15 Winter	2	+0%	100/30 Winter				5.775
18.000	58	15 Winter	2	+0%	100/15 Winter				5.798
17.001	57	15 Winter	2	+0%	100/15 Winter				5.331
17.002	59	15 Winter	2	+0%	100/15 Winter				5.222
19.000	60	15 Winter	2	+0%	100/15 Summer				5.523
12.005	55	15 Winter	2	+0%	100/15 Summer				4.953
12.006	61	1440 Winter	2	+0%	100/15 Summer				4.856
20.000	62	15 Winter	2	+0%	100/30 Winter				5.678
20.001	63	15 Winter	2	+0%	100/15 Winter				5.458
21.000	65	15 Winter	2	+0%	100/30 Winter				5.790
21.001	66	15 Winter	2	+0%	100/30 Winter				5.731
21.002	67	15 Winter	2	+0%	100/30 Winter				5.659
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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP			Ford Airfield System 2 Southern Network				
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Micro Drainage			Network 2018.1.1				
<u>2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)</u> <u>for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03</u>							
PN	US/MH Name	Depth (m)	Surcharged Volume (m³)	Flooded Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Level Status Exceeded
6.001	19	-0.268	0.000	0.34		51.7	OK
6.002	20	-0.280	0.000	0.30		50.5	OK
6.003	21	-0.282	0.000	0.30		49.4	OK
6.004	22	-0.242	0.000	0.43		48.5	OK
7.000	24	-0.348	0.000	0.11		13.0	OK
7.001	25	-0.361	0.000	0.09		13.0	OK
7.002	26	-0.363	0.000	0.08		12.6	OK
7.003	27	-0.316	0.000	0.19		32.2	OK
7.004	28	-0.299	0.000	0.25		32.0	OK
6.005	23	-0.360	0.000	0.32		97.0	OK
6.006	29	-0.336	0.000	0.39		123.1	OK
8.000	31	-0.182	0.000	0.32		19.7	OK
9.000	33	-0.198	0.000	0.25		13.7	OK
9.001	34	-0.358	0.000	0.09		13.9	OK
8.001	32	-0.401	0.000	0.23		71.6	OK
6.007	30	-0.370	0.000	0.50		236.9	OK
10.000	36	-0.300	0.000	0.22		39.3	OK
10.001	37	-0.354	0.000	0.35		79.8	OK
6.008	35	-0.455	0.000	0.41		290.8	OK
6.009	38	-0.469	0.000	0.59		346.9	OK
11.000	40	-0.319	0.000	0.18		27.7	OK
11.001	41	-0.330	0.000	0.16		27.9	OK
6.010	39	-0.620	0.000	0.35		371.1	OK
6.011	42	-0.737	0.000	0.02		40.0	OK
12.000	43	-0.179	0.000	0.34		20.5	OK
13.000	45	-0.338	0.000	0.13		21.0	OK
12.001	44	-0.303	0.000	0.23		40.7	OK
14.000	47	-0.475	0.000	0.10		27.2	OK
14.001	48	-0.466	0.000	0.06		24.0	OK
12.002	46	-0.406	0.000	0.22		103.7	OK
15.000	50	-0.131	0.000	0.35		12.1	OK
15.001	51	-0.134	0.000	0.34		12.2	OK
16.000	53	-0.197	0.000	0.26		15.3	OK
15.002	52	-0.277	0.000	0.30		53.2	OK
12.003	49	-0.348	0.000	0.56		190.7	OK
12.004	54	-0.387	0.000	0.47		206.8	OK
17.000	56	-0.334	0.000	0.15		26.0	OK
18.000	58	-0.192	0.000	0.28		16.1	OK
17.001	57	-0.553	0.000	0.12		58.4	OK
17.002	59	-0.542	0.000	0.17		83.0	OK
19.000	60	-0.197	0.000	0.26		15.2	OK
12.005	55	-0.626	0.000	0.31		332.9	OK
12.006	61	-0.603	0.000	0.02		30.5	OK
20.000	62	-0.359	0.000	0.09		13.7	OK
20.001	63	-0.502	0.000	0.04		13.1	OK
21.000	65	-0.336	0.000	0.14		20.9	OK
21.001	66	-0.339	0.000	0.14		20.9	OK
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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 2 Southern Network	
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Micro Drainage	Network 2018.1.1	

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03

PN	US/MH Name	Surcharged		Flooded		Pipe		Level Exceeded
		Depth (m)	Volume (m ³)	Flow / Cap.	Overflow (l/s)	Flow (l/s)	Status	
21.002	67	-0.342	0.000	0.13		20.7	OK	

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP					Ford Airfield System 2 Southern Network				
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Micro Drainage					Network 2018.1.1				
<u>2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)</u> <u>for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03</u>									
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
21.003	68	15 Winter	2	+0%	100/15 Winter				5.474
20.002	64	15 Winter	2	+0%	100/15 Winter				5.399
20.003	69	15 Winter	2	+0%	100/15 Summer				5.277
22.000	71	15 Winter	2	+0%	100/15 Winter				5.664
22.001	72	15 Winter	2	+0%	100/15 Summer				5.256
23.000	74	15 Winter	2	+0%	100/15 Winter				5.436
23.001	75	15 Winter	2	+0%	100/15 Summer				5.327
23.002	76	15 Winter	2	+0%	100/15 Summer				5.198
22.002	73	15 Winter	2	+0%	100/15 Summer				5.192
20.004	70	15 Winter	2	+0%	100/15 Summer				4.879
20.005	77	1440 Winter	2	+0%	100/15 Summer				4.856
1.009	17	1440 Winter	2	+0%	100/15 Summer				4.856
1.010	78	1440 Winter	2	+0%	30/360 Winter				4.856
</									

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP		Ford Airfield System 2 Southern Network			
Date 13/02/2020 12:40 File C85228 SW Network 2 Sou...		Designed by IS Checked by AMc			
Micro Drainage		Network 2018.1.1			
<u>30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)</u> <u>for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03</u>					
Simulation Criteria					
Areal Reduction Factor 1.000		Additional Flow - % of Total Flow 0.000			
Hot Start (mins) 0		MADD Factor * 10m³/ha Storage 0.000			
Hot Start Level (mm) 0		Inlet Coeffiecient 0.800			
Manhole Headloss Coeff (Global) 0.500		Flow per Person per Day (l/per/day) 0.000			
Foul Sewage per hectare (l/s) 0.000					
Number of Input Hydrographs 0		Number of Storage Structures 1			
Number of Online Controls 1		Number of Time/Area Diagrams 0			
Number of Offline Controls 0		Number of Real Time Controls 0			
Synthetic Rainfall Details					
Rainfall Model		FEH			
FEH Rainfall Version		2013			
Site Location		GB 500450 103100 TQ 00450 03100			
Data Type		Catchment			
Cv (Summer)		0.750			
Cv (Winter)		0.840			
Margin for Flood Risk Warning (mm) 300.0		DVD Status OFF			
Analysis Timestep		Fine Inertia Status OFF			
DTS Status		OFF			
Profile(s)		Summer and Winter			
Duration(s) (mins)		15, 30, 60, 120, 240, 360, 480, 960, 1440, 10080			
Return Period(s) (years)		2, 30, 100			
Climate Change (%)		0, 0, 40			
		</			

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 2 Southern Network	
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Micro Drainage	Network 2018.1.1	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03

PN	US/MH Name	Surcharged Flooded		Pipe		Status	Level Exceeded
		Depth (m)	Volume (m ³)	Flow / Cap.	Overflow (l/s)	Flow (l/s)	
1.000	1	-0.376	0.000	0.29		85.4	OK
2.000	3	-0.438	0.000	0.14		39.6	OK
1.001	2	-0.435	0.000	0.34		163.3	OK
3.000	5	-0.294	0.000	0.26		43.2	OK
1.002	4	-0.434	0.000	0.39		304.4	OK
4.000	7	-0.464	0.000	0.16		125.9	OK
4.001	8	-0.302	0.000	0.74		551.7	OK
1.003	6	-0.343	0.000	0.78		836.1	OK
1.004	9	-0.421	0.000	0.73		878.5	OK
1.005	10	-0.447	0.000	0.63		864.0	OK
5.000	12	-0.175	0.000	0.35		25.1	OK
5.001	13	-0.336	0.000	0.13		23.5	OK
5.002	14	-0.351	0.000	0.35		103.4	OK
1.006	11	-0.468	0.000	0.62		979.6	OK
1.007	15	-0.451	0.000	0.67		950.0	OK
1.008	16	-0.426	0.000	0.01		20.3	OK
6.000	18	-0.245	0.000	0.41		69.6	OK

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 2 Southern Network	
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Micro Drainage Network 2018.1.1		

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 2 – Southern Parcel Rev D 2020.02.03

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
6.001	19	15 Winter	30	+0%	100/15 Summer			
6.002	20	15 Winter	30	+0%	100/15 Summer			
6.003	21	15 Winter	30	+0%	100/15 Summer			
6.004	22	15 Winter	30	+0%	100/15 Summer			
7.000	24	15 Winter	30	+0%	100/15 Winter			
7.001	25	15 Winter	30	+0%	100/15 Winter			
7.002	26	15 Winter	30	+0%	100/15 Summer			
7.003	27	15 Winter	30	+0%	100/15 Summer			
7.004	28	15 Winter	30	+0%	100/15 Summer			
6.005	23	15 Winter	30	+0%	100/15 Summer			
6.006	29	15 Winter	30	+0%	100/15 Summer			
8.000	31	15 Winter	30	+0%	100/15 Summer			
9.000	33	15 Winter	30	+0%	100/15 Summer			
9.001	34	15 Winter	30	+0%	100/15 Summer			
8.001	32	15 Winter	30	+0%	100/15 Summer			
6.007	30	15 Winter	30	+0%	100/15 Summer			
10.000	36	15 Winter	30	+0%	100/15 Winter			
10.001	37	15 Winter	30	+0%	100/15 Summer			
6.008	35	15 Winter	30	+0%	100/15 Summer			
6.009	38	15 Winter	30	+0%	100/15 Summer			
11.000	40	15 Winter	30	+0%	100/15 Winter			
11.001	41	15 Winter	30	+0%	100/15 Winter			
6.010	39	15 Winter	30	+0%	100/15 Summer			
6.011	42	10080 Winter	30	+0%	100/15 Summer			
12.000	43	15 Winter	30	+0%	100/15 Summer			
13.000	45	15 Winter	30	+0%	100/15 Winter			
12.001	44	15 Winter	30	+0%	100/15 Summer			
14.000	47	15 Winter	30	+0%	100/15 Summer			
14.001	48	15 Winter	30	+0%	100/15 Summer			
12.002	46	15 Winter	30	+0%	100/15 Summer			
15.000	50	15 Winter	30	+0%	100/15 Summer			
15.001	51	15 Winter	30	+0%	100/15 Summer			
16.000	53	15 Winter	30	+0%	100/15 Summer			
15.002	52	15 Winter	30	+0%	100/15 Summer			
12.003	49	15 Winter	30	+0%	100/15 Summer			
12.004	54	15 Winter	30	+0%	100/15 Summer			
17.000	56	15 Winter	30	+0%	100/30 Winter			
18.000	58	15 Winter	30	+0%	100/15 Winter			
17.001	57	15 Winter	30	+0%	100/15 Winter			
17.002	59	15 Winter	30	+0%	100/15 Winter			
19.000	60	15 Winter	30	+0%	100/15 Summer			
12.005	55	10080 Winter	30	+0%	100/15 Summer			
12.006	61	10080 Winter	30	+0%	100/15 Summer			
20.000	62	15 Winter	30	+0%	100/30 Winter			
20.001	63	15 Winter	30	+0%	100/15 Winter			
21.000	65	15 Winter	30	+0%	100/30 Winter			
21.001	66	15 Winter	30	+0%	100/30 Winter			
21.002	67	15 Winter	30	+0%	100/30 Winter			
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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP				Ford Airfield System 2 Southern Network					
Date 13/02/2020 12:40 File C85228 SW Network 2 Sou...				Designed by IS Checked by AMc					
Micro Drainage				Network 2018.1.1					
<u>30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)</u> <u>for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03</u>									
		Water	Surcharged	Flooded		Pipe			
	US/MH	Level	Depth	Volume	Flow /	Overflow	Pipe		Level
PN	Name	(m)	(m)	(m³)	Cap.	(l/s)	Flow	Status	Exceeded
6.001	19	6.564	-0.149	0.000	0.78		117.6	OK	
6.002	20	6.472	-0.171	0.000	0.68		115.0	OK	
6.003	21	6.315	-0.170	0.000	0.65		108.7	OK	
6.004	22	6.234	-0.104	0.000	0.95		106.4	OK	
7.000	24	6.498	-0.298	0.000	0.25		28.0	OK	
7.001	25	6.463	-0.315	0.000	0.18		27.7	OK	
7.002	26	6.398	-0.308	0.000	0.17		27.5	OK	
7.003	27	6.343	-0.232	0.000	0.44		76.6	OK	
7.004	28	6.151	-0.201	0.000	0.58		74.2	OK	
6.005	23	6.124	-0.195	0.000	0.67		204.8	OK	
6.006	29	6.028	-0.138	0.000	0.81		257.8	OK	
8.000	31	6.238	-0.113	0.000	0.68		41.6	OK	
9.000	33	6.096	-0.142	0.000	0.53		29.5	OK	
9.001	34	5.923	-0.248	0.000	0.19		29.2	OK	
8.001	32	5.917	-0.181	0.000	0.53		162.7	OK	
6.007	30	5.890	-0.045	0.000	1.00		470.9	OK	
10.000	36	6.014	-0.218	0.000	0.47		82.7	OK	
10.001	37	5.680	-0.187	0.000	0.80		182.8	OK	
6.008	35	5.649	-0.176	0.000	0.81		583.4	OK	
6.009	38	5.548	-0.183	0.000	1.20		708.8	OK	
11.000	40	5.744	-0.252	0.000	0.39		59.7	OK	
11.001	41	5.657	-0.266	0.000	0.34		58.8	OK	
6.010	39	5.323	-0.378	0.000	0.72		769.1	OK	
6.011	42	5.278	-0.315	0.000	0.01		16.5	OK	
12.000	43	6.147	-0.107	0.000	0.71		42.4	OK	
13.000	45	5.950	-0.274	0.000	0.28		45.0	OK	
12.001	44	5.879	-0.227	0.000	0.45		80.1	OK	
14.000	47	5.717	-0.193	0.000	0.20		56.3	OK	
14.001	48	5.709	-0.147	0.000	0.10		44.2	OK	
12.002	46	5.704	-0.090	0.000	0.41		191.1	OK	
15.000	50	6.317	-0.074	0.000	0.76		26.0	OK	
15.001	51	6.153	-0.082	0.000	0.70		24.8	OK	
16.000	53	6.002	-0.141	0.000	0.53		31.4	OK	
15.002	52	5.836	-0.160	0.000	0.67		117.1	OK	
12.003	49	5.677	-0.014	0.000	1.00		342.4	OK	
12.004	54	5.454	-0.198	0.000	0.88		386.5	OK	
17.000	56	5.835	-0.274	0.000	0.32		55.8	OK	
18.000	58	5.858	-0.132	0.000	0.59		34.5	OK	
17.001	57	5.448	-0.436	0.000	0.28		131.9	OK	
17.002	59	5.346	-0.418	0.000	0.37		185.5	OK	
19.000	60	5.579	-0.141	0.000	0.55		32.7	OK	
12.005	55	5.278	-0.301	0.000	0.01		11.3	OK	
12.006	61	5.278	-0.181	0.000	0.01		12.7	OK	
20.000	62	5.722	-0.315	0.000	0.19		29.4	OK	
20.001	63	5.549	-0.411	0.000	0.09		28.0	OK	
21.000	65	5.849	-0.277	0.000	0.31		45.1	OK	
21.001	66	5.788	-0.282	0.000	0.30		45.0	OK	
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Micro Drainage	Network 2018.1.1	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03

PN	US/MH Name	Water Surcharged			Flooded		Pipe		Level Exceeded
		Level (m)	Depth (m)	Volume (m ³)	Flow / Cap.	Overflow (l/s)	Flow (l/s)	Status	
21.002	67	5.714	-0.287	0.000	0.28		44.1	OK	

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 2 Southern Network
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Micro Drainage	Network 2018.1.1



30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
21.003	68	15 Winter	30	+0%	100/15 Winter			
20.002	64	15 Winter	30	+0%	100/15 Winter			
20.003	69	15 Winter	30	+0%	100/15 Summer			
22.000	71	15 Winter	30	+0%	100/15 Winter			
22.001	72	15 Winter	30	+0%	100/15 Summer			
23.000	74	15 Winter	30	+0%	100/15 Winter			
23.001	75	15 Winter	30	+0%	100/15 Summer			
23.002	76	15 Winter	30	+0%	100/15 Summer			
22.002	73	15 Winter	30	+0%	100/15 Summer			
20.004	70	10080 Winter	30	+0%	100/15 Summer			
20.005	77	10080 Winter	30	+0%	100/15 Summer			
1.009	17	10080 Winter	30	+0%	100/15 Summer			
1.010	78	10080 Winter	30	+0%	30/360 Winter			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
21.003	68	5.582	-0.333	0.000	0.26		77.5	OK	
20.002	64	5.525	-0.279	0.000	0.48		146.0	OK	
20.003	69	5.417	-0.239	0.000	0.62		198.2	OK	
22.000	71	5.732	-0.248	0.000	0.39		68.4	OK	
22.001	72	5.372	-0.324	0.000	0.22		66.4	OK	
23.000	74	5.499	-0.264	0.000	0.35		56.0	OK	
23.001	75	5.400	-0.253	0.000	0.36		54.4	OK	
23.002	76	5.342	-0.237	0.000	0.31		56.9	OK	
22.002	73	5.336	-0.224	0.000	0.68		208.8	OK	
20.004	70	5.279	-0.128	0.000	0.01		7.2	OK	
20.005	77	5.279	-0.011	0.000	0.01		8.4	OK	
1.009	17	5.278	-0.172	0.000	0.02		55.1	OK	
1.010	78	5.278	0.185	0.000	0.01		14.9	SURCHARGED	

JNP Group	Page 34
3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 2 Southern Network
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Micro Drainage	Network 2018.1.1



100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 0.000
Hot Start Level (mm) 0 Inlet Coefficient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 1
Number of Online Controls 1 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH
FEH Rainfall Version 2013
Site Location GB 500450 103100 TQ 00450 03100
Data Type Catchment
Cv (Summer) 0.750
Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status OFF

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440, 10080
Return Period(s) (years) 2, 30, 100
Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	1 30	Winter	100	+40%					6.572
2.000	3 30	Winter	100	+40%					6.563
1.001	2 30	Winter	100	+40%	100/30	Winter			6.554
3.000	5 30	Winter	100	+40%	100/30	Winter			6.549
1.002	4 30	Winter	100	+40%	100/15	Winter			6.532
4.000	7 30	Winter	100	+40%	100/15	Winter			6.612
4.001	8 30	Winter	100	+40%	100/15	Summer			6.598
1.003	6 30	Winter	100	+40%	100/15	Summer			6.499
1.004	9 30	Winter	100	+40%	100/15	Winter			6.397
1.005	10 30	Winter	100	+40%	100/15	Winter			6.348
5.000	12 15	Winter	100	+40%					6.414
5.001	13 30	Winter	100	+40%					6.312
5.002	14 30	Winter	100	+40%	100/15	Winter			6.303
1.006	11 30	Winter	100	+40%	100/15	Winter			6.287
1.007	15 30	Winter	100	+40%	100/15	Summer			6.145
1.008	16 30	Winter	100	+40%	100/15	Summer			6.046
6.000	18 15	Winter	100	+40%	100/15	Summer			7.412

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Micro Drainage	Network 2018.1.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank
1) for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03

PN	US/MH Name	Surcharged Flooded		Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
		Depth (m)	Volume (m³)					
1.000	1	-0.078	0.000	0.41		121.6	OK	
2.000	3	-0.066	0.000	0.20		56.3	OK	
1.001	2	0.014	0.000	0.45		216.7	SURCHARGED	
3.000	5	0.002	0.000	0.36		60.3	SURCHARGED	
1.002	4	0.136	0.000	0.51		403.1	SURCHARGED	
4.000	7	0.092	0.000	0.23		182.2	SURCHARGED	
4.001	8	0.264	0.000	1.15		860.4	SURCHARGED	
1.003	6	0.289	0.000	1.12		1203.9	SURCHARGED	
1.004	9	0.301	0.000	1.05		1262.4	SURCHARGED	
1.005	10	0.302	0.000	0.90		1227.7	SURCHARGED	
5.000	12	-0.126	0.000	0.62		44.1	OK	
5.001	13	-0.082	0.000	0.19		34.3	OK	
5.002	14	0.236	0.000	0.49		143.6	SURCHARGED	
1.006	11	0.321	0.000	0.89		1401.7	SURCHARGED	
1.007	15	0.347	0.000	1.02		1442.3	SURCHARGED	
1.008	16	0.342	0.000	0.76		1487.3	SURCHARGED	
6.000	18	0.495	0.000	0.66		114.0	SURCHARGED	

JNP Group					Page 36			
3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP				Ford Airfield System 2 Southern Network				
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Micro Drainage				Network 2018.1.1				
<u>100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03</u>								
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.
6.001	19	15 Winter	100	+40%	100/15 Summer			
6.002	20	15 Winter	100	+40%	100/15 Summer			
6.003	21	15 Winter	100	+40%	100/15 Summer			
6.004	22	30 Winter	100	+40%	100/15 Summer			
7.000	24	30 Winter	100	+40%	100/15 Winter			
7.001	25	30 Winter	100	+40%	100/15 Winter			
7.002	26	30 Winter	100	+40%	100/15 Summer			
7.003	27	30 Winter	100	+40%	100/15 Summer			
7.004	28	30 Winter	100	+40%	100/15 Summer			
6.005	23	30 Winter	100	+40%	100/15 Summer			
6.006	29	30 Winter	100	+40%	100/15 Summer			
8.000	31	30 Winter	100	+40%	100/15 Summer			
9.000	33	30 Winter	100	+40%	100/15 Summer			
9.001	34	30 Winter	100	+40%	100/15 Summer			
8.001	32	30 Winter	100	+40%	100/15 Summer			
6.007	30	30 Winter	100	+40%	100/15 Summer			
10.000	36	30 Winter	100	+40%	100/15 Winter			
10.001	37	30 Winter	100	+40%	100/15 Summer			
6.008	35	30 Winter	100	+40%	100/15 Summer			
6.009	38	30 Winter	100	+40%	100/15 Summer			
11.000	40	30 Winter	100	+40%	100/15 Winter			
11.001	41	30 Winter	100	+40%	100/15 Winter			
6.010	39	30 Winter	100	+40%	100/15 Summer			
6.011	42	10080 Winter	100	+40%	100/15 Summer			
12.000	43	15 Winter	100	+40%	100/15 Summer			
13.000	45	30 Winter	100	+40%	100/15 Winter			
12.001	44	30 Winter	100	+40%	100/15 Summer			
14.000	47	30 Winter	100	+40%	100/15 Summer			
14.001	48	30 Winter	100	+40%	100/15 Summer			
12.002	46	30 Winter	100	+40%	100/15 Summer			
15.000	50	15 Winter	100	+40%	100/15 Summer			
15.001	51	15 Winter	100	+40%	100/15 Summer			
16.000	53	15 Winter	100	+40%	100/15 Summer			
15.002	52	15 Winter	100	+40%	100/15 Summer			
12.003	49	30 Winter	100	+40%	100/15 Summer			
12.004	54	30 Winter	100	+40%	100/15 Summer			
17.000	56	30 Winter	100	+40%	100/30 Winter			
18.000	58	30 Winter	100	+40%	100/15 Winter			
17.001	57	30 Winter	100	+40%	100/15 Winter			
17.002	59	30 Winter	100	+40%	100/15 Winter			
19.000	60	30 Winter	100	+40%	100/15 Summer			
12.005	55	30 Winter	100	+40%	100/15 Summer			
12.006	61	10080 Winter	100	+40%	100/15 Summer			
20.000	62	30 Winter	100	+40%	100/30 Winter			
20.001	63	30 Winter	100	+40%	100/15 Winter			
21.000	65	30 Winter	100	+40%	100/30 Winter			
21.001	66	30 Winter	100	+40%	100/30 Winter			
21.002	67	30 Winter	100	+40%	100/30 Winter			
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Micro Drainage	Network 2018.1.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank
1) for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Overflow Cap. (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
6.001	19	7.348	0.635	0.000	1.18	178.4	SURCHARGED	
6.002	20	7.270	0.627	0.000	0.99	166.2	SURCHARGED	
6.003	21	7.126	0.641	0.000	0.96	160.8	SURCHARGED	
6.004	22	7.036	0.698	0.000	1.23	137.7	SURCHARGED	
7.000	24	7.092	0.296	0.000	0.34	39.0	SURCHARGED	
7.001	25	7.087	0.309	0.000	0.25	37.6	SURCHARGED	
7.002	26	7.078	0.372	0.000	0.27	45.1	SURCHARGED	
7.003	27	7.068	0.493	0.000	0.56	95.9	SURCHARGED	
7.004	28	7.027	0.675	0.000	0.80	102.9	SURCHARGED	
6.005	23	7.010	0.691	0.000	0.85	259.8	SURCHARGED	
6.006	29	6.902	0.736	0.000	1.14	361.5	FLOOD RISK	
8.000	31	6.774	0.423	0.000	0.91	55.7	SURCHARGED	
9.000	33	6.697	0.459	0.000	0.72	40.3	SURCHARGED	
9.001	34	6.667	0.496	0.000	0.23	35.5	SURCHARGED	
8.001	32	6.656	0.558	0.000	0.67	208.0	SURCHARGED	
6.007	30	6.606	0.671	0.000	1.65	774.9	SURCHARGED	
10.000	36	6.465	0.233	0.000	0.69	121.9	SURCHARGED	
10.001	37	6.367	0.500	0.000	1.00	227.6	SURCHARGED	
6.008	35	6.330	0.505	0.000	1.33	955.1	SURCHARGED	
6.009	38	6.167	0.436	0.000	1.99	1175.1	SURCHARGED	
11.000	40	6.152	0.156	0.000	0.56	85.2	SURCHARGED	
11.001	41	6.132	0.209	0.000	0.47	80.6	SURCHARGED	
6.010	39	6.102	0.401	0.000	1.19	1260.0	SURCHARGED	
6.011	42	6.021	0.428	0.000	0.01	26.7	SURCHARGED	
12.000	43	6.437	0.183	0.000	1.23	73.3	SURCHARGED	
13.000	45	6.362	0.138	0.000	0.39	63.8	SURCHARGED	
12.001	44	6.341	0.235	0.000	0.57	99.9	SURCHARGED	
14.000	47	6.277	0.367	0.000	0.28	79.8	SURCHARGED	
14.001	48	6.266	0.410	0.000	0.17	71.5	SURCHARGED	
12.002	46	6.259	0.465	0.000	0.68	315.2	SURCHARGED	
15.000	50	6.963	0.572	0.000	1.24	42.4	SURCHARGED	
15.001	51	6.739	0.504	0.000	1.11	39.1	SURCHARGED	
16.000	53	6.521	0.378	0.000	0.86	51.1	SURCHARGED	
15.002	52	6.410	0.414	0.000	1.04	183.0	SURCHARGED	
12.003	49	6.219	0.528	0.000	1.76	603.8	SURCHARGED	
12.004	54	6.149	0.497	0.000	1.50	661.0	SURCHARGED	
17.000	56	6.113	0.004	0.000	0.44	76.3	SURCHARGED	
18.000	58	6.122	0.132	0.000	0.84	48.9	SURCHARGED	
17.001	57	6.080	0.196	0.000	0.38	182.8	SURCHARGED	
17.002	59	6.059	0.295	0.000	0.47	235.6	SURCHARGED	
19.000	60	6.071	0.351	0.000	0.76	45.5	SURCHARGED	
12.005	55	6.026	0.447	0.000	0.87	944.2	SURCHARGED	
12.006	61	6.021	0.562	0.000	0.01	20.6	SURCHARGED	
20.000	62	6.085	0.048	0.000	0.27	42.1	SURCHARGED	
20.001	63	6.075	0.115	0.000	0.12	37.2	SURCHARGED	
21.000	65	6.126	0.000	0.000	0.44	64.0	SURCHARGED	
21.001	66	6.113	0.043	0.000	0.42	63.5	SURCHARGED	

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Micro Drainage	Network 2018.1.1



100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for JNP Surface Water Network 2 - Southern Parcel Rev D 2020.02.03

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.
21.003	68	30 Winter	100	+40%	100/15 Winter			
20.002	64	30 Winter	100	+40%	100/15 Winter			
20.003	69	30 Winter	100	+40%	100/15 Summer			
22.000	71	30 Winter	100	+40%	100/15 Winter			
22.001	72	30 Winter	100	+40%	100/15 Summer			
23.000	74	30 Winter	100	+40%	100/15 Winter			
23.001	75	30 Winter	100	+40%	100/15 Summer			
23.002	76	30 Winter	100	+40%	100/15 Summer			
22.002	73	30 Winter	100	+40%	100/15 Summer			
20.004	70	10080 Winter	100	+40%	100/15 Summer			
20.005	77	10080 Winter	100	+40%	100/15 Summer			
1.009	17	10080 Winter	100	+40%	100/15 Summer			
1.010	78	10080 Winter	100	+40%	30/360 Winter			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Overflow Cap. (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
21.003	68	6.085	0.170	0.000	0.37	110.7	SURCHARGED	
20.002	64	6.069	0.265	0.000	0.63	191.6	SURCHARGED	
20.003	69	6.034	0.378	0.000	0.83	265.4	SURCHARGED	
22.000	71	6.082	0.102	0.000	0.56	98.5	SURCHARGED	
22.001	72	6.040	0.344	0.000	0.26	78.3	SURCHARGED	
23.000	74	6.067	0.304	0.000	0.49	79.7	SURCHARGED	
23.001	75	6.046	0.393	0.000	0.46	70.0	SURCHARGED	
23.002	76	6.026	0.447	0.000	0.34	61.6	SURCHARGED	
22.002	73	6.021	0.461	0.000	0.89	273.9	SURCHARGED	
20.004	70	6.021	0.614	0.000	0.02	11.5	SURCHARGED	
20.005	77	6.021	0.731	0.000	0.01	13.9	SURCHARGED	
1.009	17	6.021	0.571	0.000	0.03	94.1	SURCHARGED	
1.010	78	6.021	0.928	0.000	0.01	14.9	SURCHARGED	

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield North West Basin Surface Water Network 3	
Date 11/07/2019 File C85228 Surface Water Ne...	Designed by IS Checked by AM	
Micro Drainage	Network 2017.1.2	

Existing Network Details for JNP Surface Water Network 3 - North West
Parcel REV C 2019.06.10

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	k (mm)	HYD SECT	DIA (mm)	Section Type
1.000	117.811	0.393	300.0	0.261	5.00	0.600	o	450	Pipe/Conduit
2.000	55.174	0.184	300.0	0.177	5.00	0.600	o	600	Pipe/Conduit
1.001	8.528	0.028	300.0	0.627	0.00	0.600	o	750	Pipe/Conduit
1.002	29.242	0.097	300.0	0.000	0.00	0.600	o	750	Pipe/Conduit
1.003	25.679	0.086	300.0	0.000	0.00	0.600	o	750	Pipe/Conduit
1.004	51.646	0.172	300.0	0.586	0.00	0.600	o	750	Pipe/Conduit
1.005	29.489	0.250	118.0	0.348	0.00	0.600	o	750	Pipe/Conduit
1.006	36.051	0.180	200.0	0.000	0.00	0.600	o	750	Pipe/Conduit
1.007	5.000	0.033	150.0	0.000	0.00	0.600	o	750	Pipe/Conduit

PN	US/MH Name	US/CL (m)	US/IL (m)	US C.Depth (m)	DS/CL (m)	DS/IL (m)	DS C.Depth (m)	Ctrl	US/MH (mm)
1.000	200	8.135	5.926	1.759	7.524	5.533	1.541		1500
2.000	202	7.184	5.567	1.017	7.524	5.383	1.541		1500
1.001	201	7.524	5.233	1.541	7.416	5.205	1.461		1800
1.002	203	7.416	5.205	1.461	7.484	5.108	1.626		1800
1.003	204	7.484	5.108	1.626	7.350	5.022	1.578		1800
1.004	205	7.350	5.022	1.578	7.551	4.850	1.951		1800
1.005	206	7.551	4.850	1.951	7.679	4.600	2.329		1800
1.006	207	7.679	4.600	2.329	7.411	4.420	2.241		1800
1.007	208	7.411	4.420	2.241	7.447	4.387	2.310	Hydro-Brake®	1800

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Manhole Schedules for JNP Surface Water Network 3 - North West Parcel REV C
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MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
200	8.135	2.209	Open Manhole	1500	1.000	5.926	450				
202	7.184	1.617	Open Manhole	1500	2.000	5.567	600				
201	7.524	2.291	Open Manhole	1800	1.001	5.233	750	1.000	5.533	450	
								2.000	5.383	600	
203	7.416	2.211	Open Manhole	1800	1.002	5.205	750	1.001	5.205	750	
204	7.484	2.376	Open Manhole	1800	1.003	5.108	750	1.002	5.108	750	
205	7.350	2.328	Open Manhole	1800	1.004	5.022	750	1.003	5.022	750	
206	7.551	2.701	Open Manhole	1800	1.005	4.850	750	1.004	4.850	750	
207	7.679	3.079	Open Manhole	1800	1.006	4.600	750	1.005	4.600	750	
208	7.411	2.991	Open Manhole	1800	1.007	4.420	750	1.006	4.420	750	
209	7.447	3.060	Open Manhole	1800		OUTFALL		1.007	4.387	750	

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PIPELINE SCHEDULES for JNP Surface Water Network 3 - North West Parcel REV C 2019.06.10

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	450	200	8.135	5.926	1.759	Open Manhole	1500
2.000	o	600	202	7.184	5.567	1.017	Open Manhole	1500
1.001	o	750	201	7.524	5.233	1.541	Open Manhole	1800
1.002	o	750	203	7.416	5.205	1.461	Open Manhole	1800
1.003	o	750	204	7.484	5.108	1.626	Open Manhole	1800
1.004	o	750	205	7.350	5.022	1.578	Open Manhole	1800
1.005	o	750	206	7.551	4.850	1.951	Open Manhole	1800
1.006	o	750	207	7.679	4.600	2.329	Open Manhole	1800
1.007	o	750	208	7.411	4.420	2.241	Open Manhole	1800

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	117.811	300.0	201	7.524	5.533	1.541	Open Manhole	1800
2.000	55.174	300.0	201	7.524	5.383	1.541	Open Manhole	1800
1.001	8.528	300.0	203	7.416	5.205	1.461	Open Manhole	1800
1.002	29.242	300.0	204	7.484	5.108	1.626	Open Manhole	1800
1.003	25.679	300.0	205	7.350	5.022	1.578	Open Manhole	1800
1.004	51.646	300.0	206	7.551	4.850	1.951	Open Manhole	1800
1.005	29.489	118.0	207	7.679	4.600	2.329	Open Manhole	1800
1.006	36.051	200.0	208	7.411	4.420	2.241	Open Manhole	1800
1.007	5.000	150.0	209	7.447	4.387	2.310	Open Manhole	1800

Free Flowing Outfall Details for JNP Surface Water Network 3 - North West Parcel REV C 2019.06.10

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D, L (mm)	W (mm)
1.007	209	7.447	4.387	4.387	1800	0

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Micro Drainage		Network 2017.1.2																																								
<u>Simulation Criteria for JNP Surface Water Network 3 - North West Parcel REV</u> <u>C 2019.06.10</u>																																										
<table border="0"> <tr> <td>Volumetric Runoff Coeff</td> <td>0.750</td> <td>Additional Flow - % of Total Flow</td> <td>0.000</td> </tr> <tr> <td>Areal Reduction Factor</td> <td>1.000</td> <td>MADD Factor * 10m³/ha Storage</td> <td>0.000</td> </tr> <tr> <td>Hot Start (mins)</td> <td>0</td> <td>Inlet Coefficient</td> <td>0.800</td> </tr> <tr> <td>Hot Start Level (mm)</td> <td>0</td> <td>Flow per Person per Day (l/per/day)</td> <td>0.000</td> </tr> <tr> <td>Manhole Headloss Coeff (Global)</td> <td>0.500</td> <td>Run Time (mins)</td> <td>60</td> </tr> <tr> <td>Foul Sewage per hectare (l/s)</td> <td>0.000</td> <td>Output Interval (mins)</td> <td>1</td> </tr> <tr> <td colspan="4"> </td> </tr> <tr> <td>Number of Input Hydrographs</td> <td>0</td> <td>Number of Storage Structures</td> <td>1</td> </tr> <tr> <td>Number of Online Controls</td> <td>1</td> <td>Number of Time/Area Diagrams</td> <td>0</td> </tr> <tr> <td>Number of Offline Controls</td> <td>0</td> <td>Number of Real Time Controls</td> <td>0</td> </tr> </table>			Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000	Areal Reduction Factor	1.000	MADD Factor * 10m ³ /ha Storage	0.000	Hot Start (mins)	0	Inlet Coefficient	0.800	Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000	Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60	Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1					Number of Input Hydrographs	0	Number of Storage Structures	1	Number of Online Controls	1	Number of Time/Area Diagrams	0	Number of Offline Controls	0	Number of Real Time Controls	0
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<u>Synthetic Rainfall Details</u> <table border="0"> <tr> <td>Rainfall Model</td> <td>FEH</td> </tr> <tr> <td>Return Period (years)</td> <td>2</td> </tr> <tr> <td>FEH Rainfall Version</td> <td>2013</td> </tr> <tr> <td>Site Location</td> <td>GB 500450 103100 TQ 00450 03100</td> </tr> <tr> <td>Data Type</td> <td>Catchment</td> </tr> <tr> <td>Summer Storms</td> <td>Yes</td> </tr> <tr> <td>Winter Storms</td> <td>No</td> </tr> <tr> <td>Cv (Summer)</td> <td>0.750</td> </tr> <tr> <td>Cv (Winter)</td> <td>0.840</td> </tr> <tr> <td>Storm Duration (mins)</td> <td>30</td> </tr> </table>			Rainfall Model	FEH	Return Period (years)	2	FEH Rainfall Version	2013	Site Location	GB 500450 103100 TQ 00450 03100	Data Type	Catchment	Summer Storms	Yes	Winter Storms	No	Cv (Summer)	0.750	Cv (Winter)	0.840	Storm Duration (mins)	30																				
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Online Controls for JNP Surface Water Network 3 - North West Parcel REV C
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Hydro-Brake® Optimum Manhole: 208, DS/PN: 1.007, Volume (m³): 22.7

Unit Reference	MD-SHE-0102-5000-1229-5000
Design Head (m)	1.229
Design Flow (l/s)	5.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	102
Invert Level (m)	4.420
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.229	5.0
Flush-Flo™	0.364	5.0
Kick-Flo®	0.759	4.0
Mean Flow over Head Range	-	4.4

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.4	1.200	4.9	3.000	7.6	7.000	11.3
0.200	4.7	1.400	5.3	3.500	8.2	7.500	11.7
0.300	4.9	1.600	5.6	4.000	8.7	8.000	12.1
0.400	5.0	1.800	6.0	4.500	9.2	8.500	12.4
0.500	4.9	2.000	6.3	5.000	9.7	9.000	12.8
0.600	4.7	2.200	6.6	5.500	10.1	9.500	13.1
0.800	4.1	2.400	6.8	6.000	10.5		
1.000	4.5	2.600	7.1	6.500	10.9		

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield North West Basin Surface Water Network 3									
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Micro Drainage Network 2017.1.2										
<u>Storage Structures for JNP Surface Water Network 3 - North West Parcel REV C 2019.06.10</u>										
<u>Tank or Pond Manhole: 208, DS/PN: 1.007</u> Invert Level (m) 4.600 <table> <thead> <tr> <th>Depth (m)</th> <th>Area (m²)</th> <th>Depth (m)</th> <th>Area (m²)</th> </tr> </thead> <tbody> <tr> <td>0.000</td> <td>1009.0</td> <td>3.000</td> <td>2992.0</td> </tr> </tbody> </table>			Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	0.000	1009.0	3.000	2992.0
Depth (m)	Area (m ²)	Depth (m)	Area (m ²)							
0.000	1009.0	3.000	2992.0							
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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 3 - North West Parcel REV C 2019.06.10

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 0.000
Hot Start Level (mm) 0 Inlet Coefficient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 1
Number of Online Controls 1 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH
FEH Rainfall Version 2013
Site Location GB 500450 103100 TQ 00450 03100
Data Type Catchment
Cv (Summer) 0.750
Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360
Return Period(s) (years) 2, 30, 100
Climate Change (%) 0, 0, 40

US/MH		Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
PN	Name								
1.000	200	15 Winter	2	+0%	100/15 Winter				6.080
2.000	202	15 Winter	2	+0%	100/15 Winter				5.687
1.001	201	15 Winter	2	+0%	100/15 Summer				5.564
1.002	203	15 Winter	2	+0%	100/15 Summer				5.490
1.003	204	15 Winter	2	+0%	100/15 Summer				5.407
1.004	205	15 Winter	2	+0%	100/15 Summer				5.344
1.005	206	15 Winter	2	+0%	100/15 Summer				5.152
1.006	207	360 Winter	2	+0%	100/15 Summer				4.955
1.007	208	360 Winter	2	+0%	30/180 Winter				4.955

US/MH		Depth (m)	Surcharged Volume (m ³)	Flooded Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
PN	Name							
1.000	200	-0.296	0.000	0.25		45.0	OK	
2.000	202	-0.480	0.000	0.08		29.6	OK	
1.001	201	-0.419	0.000	0.41		157.6	OK	

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Micro Drainage	Network 2017.1.2	

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 3 - North West Parcel REV C 2019.06.10

PN	US/MH Name	Surcharged Flooded		Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
		Depth (m)	Volume (m ³)					
1.002	203	-0.465	0.000	0.28		155.9	OK	
1.003	204	-0.451	0.000	0.29		155.3	OK	
1.004	205	-0.428	0.000	0.38		228.4	OK	
1.005	206	-0.448	0.000	0.34		265.1	OK	
1.006	207	-0.395	0.000	0.09		57.5	OK	
1.007	208	-0.215	0.000	0.01		5.0	OK	

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Micro Drainage		Network 2017.1.2

**30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 3 - North West Parcel REV C 2019.06.10**

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 0.000
Hot Start Level (mm) 0 Inlet Coefficient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 1
Number of Online Controls 1 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH
FEH Rainfall Version 2013
Site Location GB 500450 103100 TQ 00450 03100
Data Type Catchment
Cv (Summer) 0.750
Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

Profile(s)

Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360
Return Period(s) (years) 2, 30, 100
Climate Change (%) 0, 0, 40

US/MH		Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level
PN	Name								(m)
1.000	200	15 Winter	30	+0%	100/15 Winter				6.164
2.000	202	15 Winter	30	+0%	100/15 Winter				5.807
1.001	201	15 Winter	30	+0%	100/15 Summer				5.770
1.002	203	15 Winter	30	+0%	100/15 Summer				5.665
1.003	204	15 Winter	30	+0%	100/15 Summer				5.592
1.004	205	15 Winter	30	+0%	100/15 Summer				5.534
1.005	206	15 Winter	30	+0%	100/15 Summer				5.318
1.006	207	360 Winter	30	+0%	100/15 Summer				5.240
1.007	208	360 Winter	30	+0%	30/180 Winter				5.240

US/MH		Depth (m)	Surcharged Volume (m ³)	Flooded Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
PN	Name							
1.000	200	-0.212	0.000	0.48		86.3	OK	
2.000	202	-0.360	0.000	0.18		63.0	OK	
1.001	201	-0.213	0.000	0.85		330.8	OK	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 3 - North West Parcel REV C 2019.06.10

PN	US/MH Name	Surcharged Flooded		Flow / Overflow Cap. (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
		Depth (m)	Volume (m³)				
1.002	203	-0.290	0.000	0.60	328.8	OK	
1.003	204	-0.266	0.000	0.62	328.8	OK	
1.004	205	-0.238	0.000	0.79	477.3	OK	
1.005	206	-0.282	0.000	0.70	550.5	OK	
1.006	207	-0.110	0.000	0.15	100.9	OK	
1.007	208	0.070	0.000	0.01	5.0	SURCHARGED	

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Micro Drainage	Network 2017.1.2



100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for JNP Surface Water Network 3 - North West Parcel REV C 2019.06.10

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 0.000
Hot Start Level (mm) 0 Inlet Coefficient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 1
Number of Online Controls 1 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH
FEH Rainfall Version 2013
Site Location GB 500450 103100 TQ 00450 03100
Data Type Catchment
Cv (Summer) 0.750
Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360
Return Period(s) (years) 2, 30, 100
Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	200	15 Winter	100	+40%	100/15 Winter				6.523
2.000	202	15 Winter	100	+40%	100/15 Winter				6.337
1.001	201	15 Winter	100	+40%	100/15 Summer				6.313
1.002	203	15 Winter	100	+40%	100/15 Summer				6.261
1.003	204	15 Winter	100	+40%	100/15 Summer				6.172
1.004	205	15 Winter	100	+40%	100/15 Summer				6.089
1.005	206	15 Winter	100	+40%	100/15 Summer				5.800
1.006	207	360 Winter	100	+40%	100/15 Summer				5.651
1.007	208	360 Winter	100	+40%	30/180 Winter				5.650

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap. (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	200	0.147	0.000	0.83	148.0	SURCHARGED	
2.000	202	0.170	0.000	0.30	106.8	SURCHARGED	
1.001	201	0.330	0.000	1.38	533.8	SURCHARGED	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for JNP Surface Water Network 3 - North West Parcel REV C 2019.06.10

PN	US/MH Name	Surcharged		Flooded		Pipe		Status	Level Exceeded
		Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Flow (l/s)			
1.002	203	0.306	0.000	0.95		519.5		SURCHARGED	
1.003	204	0.314	0.000	0.98		523.5		SURCHARGED	
1.004	205	0.317	0.000	1.27		770.0		SURCHARGED	
1.005	206	0.200	0.000	1.13		885.7		SURCHARGED	
1.006	207	0.301	0.000	0.25		169.4		SURCHARGED	
1.007	208	0.480	0.000	0.01		5.0		SURCHARGED	

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STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for JNP Surface Water Network 4 NEW with Roundabout design

Pipe Sizes Standard Manhole Sizes STANDARD

FEH Rainfall Model	
Return Period (years)	2
FEH Rainfall Version	2013
Site Location	GB 500450 103100 TQ 00450 03100
Data Type	Catchment
Maximum Rainfall (mm/hr)	50
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	0.750
PIMP (%)	100
Add Flow / Climate Change (%)	0
Minimum Backdrop Height (m)	0.000
Maximum Backdrop Height (m)	0.000
Min Design Depth for Optimisation (m)	1.200
Min Vel for Auto Design only (m/s)	1.00
Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for JNP Surface Water Network 4 NEW with Roundabout design

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	1.134	4-8	0.599

Total Area Contributing (ha) = 1.733

Total Pipe Volume (m³) = 1020.224

Network Design Table for JNP Surface Water Network 4 NEW with Roundabout design

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	49.652	0.331	150.0	0.111	5.00	0.0	0.600	0	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	5.65	5.694	0.111	0.0	0.0	0.0	1.28	90.6	15.0

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Network Design Table for JNP Surface Water Network 4 NEW with Roundabout design

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.001	66.357	0.221	300.3	0.239	0.00	0.0	0.600	[]	12	Pipe/Conduit	
1.002	34.606	0.115	300.9	0.259	0.00	0.0	0.600	[]	12	Pipe/Conduit	
2.000	38.214	0.255	150.0	0.000	5.00	0.0	0.600	o	300	Pipe/Conduit	
2.001	14.870	0.050	300.0	0.077	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.003	50.577	0.169	300.0	0.000	0.00	0.0	0.600	[]	12	Pipe/Conduit	
3.000	72.989	0.243	300.0	0.000	5.00	0.0	0.600	[]	12	Pipe/Conduit	
3.001	26.635	0.089	300.0	0.246	0.00	0.0	0.600	[]	12	Pipe/Conduit	
4.000	52.311	0.174	300.0	0.044	5.00	0.0	0.600	[]	12	Pipe/Conduit	
4.001	43.612	0.145	300.0	0.000	0.00	0.0	0.600	[]	12	Pipe/Conduit	
1.004	31.308	0.104	301.0	0.341	0.00	0.0	0.600	[]	12	Pipe/Conduit	
5.000	57.923	0.386	150.0	0.058	5.00	0.0	0.600	o	300	Pipe/Conduit	
5.001	28.776	0.096	300.0	0.341	0.00	0.0	0.600	o	450	Pipe/Conduit	
5.002	50.764	0.169	300.0	0.017	0.00	0.0	0.600	[]	12	Pipe/Conduit	
1.005	27.616	0.184	150.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.001	50.00	6.10	4.663	0.350	0.0	0.0	0.0	2.43	5693.0	47.4
1.002	50.00	6.34	4.442	0.609	0.0	0.0	0.0	2.43	5686.7	82.5
2.000	50.00	5.50	5.332	0.000	0.0	0.0	0.0	1.28	90.6	0.0
2.001	50.00	5.77	5.077	0.077	0.0	0.0	0.0	0.90	63.8	10.4
1.003	50.00	6.68	4.327	0.686	0.0	0.0	0.0	2.43	5695.4	92.9
3.000	50.00	5.50	4.490	0.000	0.0	0.0	0.0	2.43	5695.4	0.0
3.001	50.00	5.68	4.247	0.246	0.0	0.0	0.0	2.43	5695.4	33.3
4.000	50.00	5.36	4.477	0.044	0.0	0.0	0.0	2.43	5695.4	6.0
4.001	50.00	5.66	4.303	0.044	0.0	0.0	0.0	2.43	5695.4	6.0
1.004	50.00	6.90	4.158	1.317	0.0	0.0	0.0	2.43	5685.5	178.3
5.000	50.00	5.75	5.405	0.058	0.0	0.0	0.0	1.28	90.6	7.9
5.001	50.00	6.16	4.869	0.399	0.0	0.0	0.0	1.17	185.8	54.0
5.002	50.00	6.51	4.223	0.416	0.0	0.0	0.0	2.43	5695.4	56.3
1.005	50.00	7.46	4.054	1.733	0.0	0.0	0.0	0.82	14.5«	234.7

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Conduit Sections for JNP Surface Water Network 4 NEW with Roundabout design

NOTE: Diameters less than 66 refer to section numbers of hydraulic conduits. These conduits are marked by the symbols:- [] box culvert, \ / open channel, oo dual pipe, ooo triple pipe, 0 egg.

Section numbers < 0 are taken from user conduit table

Section Number	Conduit Type	Major Dimn. (mm)	Minor Dimn. (mm)	Side Slope (Deg)	Corner Splay (mm)	4*Hyd Radius (m)	XSect Area (m ²)
12	[]	2400	1000	90.0	175	1.464	2.339

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Manhole Schedules for JNP Surface Water Network 4 NEW with Roundabout design

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
400	7.720	2.026	Open Manhole	1200	1.000	5.694	300				
401	7.099	2.436	Open Manhole	3000	1.001	4.663	12	1.000	5.363	300	
402	6.227	1.785	Open Manhole	3000	1.002	4.442	12	1.001	4.442	12	
404	7.371	2.039	Open Manhole	1200	2.000	5.332	300				
405	6.624	1.547	Open Manhole	1200	2.001	5.077	300	2.000	5.077	300	
403	6.112	1.785	Open Manhole	3000	1.003	4.327	12	1.002	4.327	12	
								2.001	5.027	300	
407	7.002	2.512	Open Manhole	3000	3.000	4.490	12				
408	6.023	1.776	Open Manhole	3000	3.001	4.247	12	3.000	4.247	12	
409	6.355	1.878	Open Manhole	3000	4.000	4.477	12				
410	6.364	2.061	Open Manhole	3000	4.001	4.303	12	4.000	4.303	12	
406	6.093	1.935	Open Manhole	3000	1.004	4.158	12	1.003	4.158	12	
								3.001	4.158	12	
								4.001	4.158	12	
412	7.665	2.260	Open Manhole	1200	5.000	5.405	300				
413	6.369	1.500	Open Manhole	1500	5.001	4.869	450	5.000	5.019	300	
414	6.008	1.785	Open Manhole	3000	5.002	4.223	12	5.001	4.773	450	
411	6.050	1.996	Open Manhole	3000	1.005	4.054	150	1.004	4.054	12	
								5.002	4.054	12	
415	5.610	1.740	Open Manhole	1200		OUTFALL		1.005	3.870	150	

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PIPELINE SCHEDULES for JNP Surface Water Network 4 NEW with Roundabout design

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	300	400	7.720	5.694	1.726	Open Manhole	1200
1.001	[]	12	401	7.099	4.663	1.436	Open Manhole	3000
1.002	[]	12	402	6.227	4.442	0.785	Open Manhole	3000
2.000	o	300	404	7.371	5.332	1.739	Open Manhole	1200
2.001	o	300	405	6.624	5.077	1.247	Open Manhole	1200
1.003	[]	12	403	6.112	4.327	0.785	Open Manhole	3000
3.000	[]	12	407	7.002	4.490	1.512	Open Manhole	3000
3.001	[]	12	408	6.023	4.247	0.776	Open Manhole	3000
4.000	[]	12	409	6.355	4.477	0.878	Open Manhole	3000
4.001	[]	12	410	6.364	4.303	1.061	Open Manhole	3000
1.004	[]	12	406	6.093	4.158	0.935	Open Manhole	3000
5.000	o	300	412	7.665	5.405	1.960	Open Manhole	1200
5.001	o	450	413	6.369	4.869	1.050	Open Manhole	1500
5.002	[]	12	414	6.008	4.223	0.785	Open Manhole	3000

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	49.652	150.0	401	7.099	5.363	1.436	Open Manhole	3000
1.001	66.357	300.3	402	6.227	4.442	0.785	Open Manhole	3000
1.002	34.606	300.9	403	6.112	4.327	0.785	Open Manhole	3000
2.000	38.214	150.0	405	6.624	5.077	1.247	Open Manhole	1200
2.001	14.870	300.0	403	6.112	5.027	0.785	Open Manhole	3000
1.003	50.577	300.0	406	6.093	4.158	0.935	Open Manhole	3000
3.000	72.989	300.0	408	6.023	4.247	0.776	Open Manhole	3000
3.001	26.635	300.0	406	6.093	4.158	0.935	Open Manhole	3000
4.000	52.311	300.0	410	6.364	4.303	1.061	Open Manhole	3000
4.001	43.612	300.0	406	6.093	4.158	0.935	Open Manhole	3000
1.004	31.308	301.0	411	6.050	4.054	0.996	Open Manhole	3000
5.000	57.923	150.0	413	6.369	5.019	1.050	Open Manhole	1500
5.001	28.776	300.0	414	6.008	4.773	0.785	Open Manhole	3000
5.002	50.764	300.0	411	6.050	4.054	0.996	Open Manhole	3000

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PIPELINE SCHEDULES for JNP Surface Water Network 4 NEW with Roundabout design

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.005	o	150	411	6.050	4.054	1.846	Open Manhole	3000

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.005	27.616	150.0	415	5.610	3.870	1.590	Open Manhole	1200

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Area Summary for JNP Surface Water Network 4 NEW with Roundabout design

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.111	0.111	0.111
1.001	-	-	100	0.239	0.239	0.239
1.002	-	-	100	0.259	0.259	0.259
2.000	-	-	100	0.000	0.000	0.000
2.001	-	-	100	0.077	0.077	0.077
1.003	-	-	100	0.000	0.000	0.000
3.000	-	-	100	0.000	0.000	0.000
3.001	-	-	100	0.246	0.246	0.246
4.000	-	-	100	0.044	0.044	0.044
4.001	-	-	100	0.000	0.000	0.000
1.004	-	-	100	0.341	0.341	0.341
5.000	-	-	100	0.058	0.058	0.058
5.001	-	-	100	0.341	0.341	0.341
5.002	-	-	100	0.017	0.017	0.017
1.005	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				1.733	1.733	1.733

Free Flowing Outfall Details for JNP Surface Water Network 4 NEW with Roundabout design

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.005	415	5.610	3.870	3.870	1200	0

Simulation Criteria for JNP Surface Water Network 4 NEW with Roundabout design

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /ha Storage	0.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs	0	Number of Storage Structures	2
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FEH
Return Period (years)	2
FEH Rainfall Version	2013
Site Location	GB 500450 103100 TQ 00450 03100
Data Type	Catchment

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<u>Synthetic Rainfall Details</u> Summer Storms Yes Winter Storms No Cv (Summer) 0.750 Cv (Winter) 0.840 Storm Duration (mins) 30		
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Online Controls for JNP Surface Water Network 4 NEW with Roundabout design

Hydro-Brake® Optimum Manhole: 411, DS/PN: 1.005, Volume (m³): 192.0

Unit Reference	MD-SHE-0060-2000-1635-2000
Design Head (m)	1.635
Design Flow (l/s)	2.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	60
Invert Level (m)	4.054
Minimum Outlet Pipe Diameter (mm)	75
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.635	2.0
Flush-Flo™	0.260	1.5
Kick-Flo®	0.532	1.2
Mean Flow over Head Range	-	1.5

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.3	1.200	1.7	3.000	2.6	7.000	3.9
0.200	1.5	1.400	1.9	3.500	2.8	7.500	4.0
0.300	1.5	1.600	2.0	4.000	3.0	8.000	4.2
0.400	1.4	1.800	2.1	4.500	3.2	8.500	4.3
0.500	1.3	2.000	2.2	5.000	3.3	9.000	4.4
0.600	1.3	2.200	2.3	5.500	3.5	9.500	4.5
0.800	1.4	2.400	2.4	6.000	3.6		
1.000	1.6	2.600	2.5	6.500	3.8		

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Storage Structures for JNP Surface Water Network 4 NEW with Roundabout design

Tank or Pond Manhole: 406, DS/PN: 1.004

Invert Level (m) 5.450

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	615.0	0.550	840.0

Complex Manhole: 411, DS/PN: 1.005

Cellular Storage

Invert Level (m) 4.150 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	450.0	450.0	0.700	0.0	504.0
0.600	450.0	504.0			

Tank or Pond

Invert Level (m) 5.450

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	1649.0	0.550	1976.0

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Micro Drainage			Network 2018.1.1					
2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for JNP Surface Water Network 4 NEW with Roundabout design								
Simulation Criteria								
Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000								
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 0.000								
Hot Start Level (mm) 0 Inlet Coeffiecient 0.800								
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000								
Foul Sewage per hectare (l/s) 0.000								
Number of Input Hydrographs 0 Number of Storage Structures 2								
Number of Online Controls 1 Number of Time/Area Diagrams 0								
Number of Offline Controls 0 Number of Real Time Controls 0								
Synthetic Rainfall Details								
Rainfall Model FEH								
FEH Rainfall Version 2013								
Site Location GB 500450 103100 TQ 00450 03100								
Data Type Catchment								
Cv (Summer) 0.750								
Cv (Winter) 0.840								
Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF								
Analysis Timestep Fine Inertia Status OFF								
DTS Status OFF								
Profile(s) Summer and Winter								
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440, 10080								
Return Period(s) (years) 2, 30, 100								
Climate Change (%) 0, 0, 40								
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	400	15 Winter	2	+0%				
1.001	401	15 Winter	2	+0%	100/10080 Winter			
1.002	402	10080 Winter	2	+0%	100/360 Winter			
2.000	404	120 Winter	2	+0%	100/10080 Winter			
2.001	405	15 Winter	2	+0%	100/360 Winter			
1.003	403	10080 Winter	2	+0%	100/360 Winter			
3.000	407	10080 Winter	2	+0%	100/480 Winter			
3.001	408	10080 Winter	2	+0%	100/240 Winter			
4.000	409	10080 Winter	2	+0%	100/480 Winter			
4.001	410	10080 Winter	2	+0%	100/240 Winter			
1.004	406	10080 Winter	2	+0%	100/240 Winter			
5.000	412	15 Winter	2	+0%				
5.001	413	15 Winter	2	+0%	100/15 Summer			
5.002	414	10080 Winter	2	+0%	100/240 Winter			
1.005	411	10080 Winter	2	+0%	2/15 Summer			
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Micro Drainage	Network 2018.1.1	

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 4 NEW with Roundabout design

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Overflow Cap.	Pipe Flow (l/s)	Status	Level Exceeded
1.000	400	5.790	-0.204	0.000	0.22	19.0	OK	
1.001	401	4.689	-0.974	0.000	0.01	53.8	OK	
1.002	402	4.666	-0.776	0.000	0.00	1.7	OK	
2.000	404	5.332	-0.300	0.000	0.00	0.0	OK	
2.001	405	5.170	-0.207	0.000	0.21	11.2	OK	
1.003	403	4.666	-0.661	0.000	0.00	1.8	OK	
3.000	407	4.667	-0.823	0.000	0.00	0.0	OK	
3.001	408	4.667	-0.580	0.000	0.00	0.5	OK	
4.000	409	4.666	-0.811	0.000	0.00	0.1	OK	
4.001	410	4.666	-0.637	0.000	0.00	0.2	OK	
1.004	406	4.667	-0.491	0.000	0.00	2.4	OK	
5.000	412	5.473	-0.232	0.000	0.11	9.7	OK	
5.001	413	5.060	-0.259	0.000	0.37	59.4	OK	
5.002	414	4.667	-0.556	0.000	0.00	1.2	OK	
1.005	411	4.667	0.463	0.000	0.11	1.5	SURCHARGED	

JNP Group			Page 13					
3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP		Ford Airfield System 4 South West Network						
Date 10/02/2020 13:41 File C85228 SW Network 4 wit...		Designed by IS Checked by AMC						
Micro Drainage		Network 2018.1.1						
<u>30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for JNP Surface Water Network 4 NEW with Roundabout design</u>								
Simulation Criteria								
Areal Reduction Factor 1.000		Additional Flow - % of Total Flow 0.000						
Hot Start (mins) 0		MADD Factor * 10m³/ha Storage 0.000						
Hot Start Level (mm) 0		Inlet Coefficient 0.800						
Manhole Headloss Coeff (Global) 0.500		Flow per Person per Day (l/per/day) 0.000						
Foul Sewage per hectare (l/s) 0.000								
Number of Input Hydrographs 0 Number of Storage Structures 2								
Number of Online Controls 1 Number of Time/Area Diagrams 0								
Number of Offline Controls 0 Number of Real Time Controls 0								
Synthetic Rainfall Details								
Rainfall Model		FEH						
FEH Rainfall Version		2013						
Site Location		GB 500450 103100 TQ 00450 03100						
Data Type		Catchment						
Cv (Summer)		0.750						
Cv (Winter)		0.840						
Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF								
Analysis Timestep Fine Inertia Status OFF								
DTS Status OFF								
Profile(s) Summer and Winter								
Duration(s) (mins)		15, 30, 60, 120, 240, 360, 480, 960, 1440, 10080						
Return Period(s) (years)		2, 30, 100						
Climate Change (%)		0, 0, 40						
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	400	15 Winter	30	+0%				
1.001	401	10080 Winter	30	+0%	100/10080 Winter			
1.002	402	10080 Winter	30	+0%	100/360 Winter			
2.000	404	120 Winter	30	+0%	100/10080 Winter			
2.001	405	15 Winter	30	+0%	100/360 Winter			
1.003	403	10080 Winter	30	+0%	100/360 Winter			
3.000	407	10080 Winter	30	+0%	100/480 Winter			
3.001	408	10080 Winter	30	+0%	100/240 Winter			
4.000	409	10080 Winter	30	+0%	100/480 Winter			
4.001	410	10080 Winter	30	+0%	100/240 Winter			
1.004	406	10080 Winter	30	+0%	100/240 Winter			
5.000	412	15 Winter	30	+0%				
5.001	413	15 Winter	30	+0%	100/15 Summer			
5.002	414	10080 Winter	30	+0%	100/240 Winter			
1.005	411	10080 Winter	30	+0%	2/15 Summer			
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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 4 South West Network	
Date 10/02/2020 13:41 File C85228 SW Network 4 wit...	Designed by IS Checked by AMc	
Micro Drainage	Network 2018.1.1	

**30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 4 NEW with Roundabout design**

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Overflow Cap. (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	400	5.842	-0.152	0.000	0.48	40.8	OK	
1.001	401	5.018	-0.645	0.000	0.00	1.5	OK	
1.002	402	5.018	-0.424	0.000	0.00	2.2	OK	
2.000	404	5.332	-0.300	0.000	0.00	0.0	OK	
2.001	405	5.239	-0.138	0.000	0.57	30.3	OK	
1.003	403	5.018	-0.309	0.000	0.00	2.2	OK	
3.000	407	5.018	-0.472	0.000	0.00	0.0	OK	
3.001	408	5.018	-0.229	0.000	0.00	0.5	OK	
4.000	409	5.018	-0.459	0.000	0.00	0.2	OK	
4.001	410	5.018	-0.285	0.000	0.00	0.2	OK	
1.004	406	5.018	-0.140	0.000	0.00	2.6	OK	
5.000	412	5.507	-0.198	0.000	0.24	20.8	OK	
5.001	413	5.223	-0.096	0.000	0.96	152.3	OK	
5.002	414	5.018	-0.205	0.000	0.00	1.7	OK	
1.005	411	5.018	0.814	0.000	0.11	1.6	SURCHARGED	

JNP Group			Page 15					
3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP			Ford Airfield System 4 South West Network					
Date 10/02/2020 13:41 File C85228 SW Network 4 wit...			Designed by IS Checked by AMC					
Micro Drainage			Network 2018.1.1					
100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for JNP Surface Water Network 4 NEW with Roundabout design								
Simulation Criteria Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000 Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 0.000 Hot Start Level (mm) 0 Inlet Coefficient 0.800 Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000 Foul Sewage per hectare (l/s) 0.000 Number of Input Hydrographs 0 Number of Storage Structures 2 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0 Number of Real Time Controls 0 Synthetic Rainfall Details Rainfall Model FEH FEH Rainfall Version 2013 Site Location GB 500450 103100 TQ 00450 03100 Data Type Catchment Cv (Summer) 0.750 Cv (Winter) 0.840 Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status OFF Profile(s) Summer and Winter Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440, 10080 Return Period(s) (years) 2, 30, 100 Climate Change (%) 0, 0, 40								
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	400	15 Winter	100	+40%				
1.001	401	10080 Winter	100	+40%	100/10080 Winter			
1.002	402	10080 Winter	100	+40%	100/360 Winter			
2.000	404	10080 Winter	100	+40%	100/10080 Winter			
2.001	405	10080 Winter	100	+40%	100/360 Winter			
1.003	403	10080 Winter	100	+40%	100/360 Winter			
3.000	407	10080 Winter	100	+40%	100/480 Winter			
3.001	408	10080 Winter	100	+40%	100/240 Winter			
4.000	409	10080 Winter	100	+40%	100/480 Winter			
4.001	410	10080 Winter	100	+40%	100/240 Winter			
1.004	406	10080 Winter	100	+40%	100/240 Winter			
5.000	412	10080 Winter	100	+40%				
5.001	413	10080 Winter	100	+40%	100/15 Summer			
5.002	414	10080 Winter	100	+40%	100/240 Winter			
1.005	411	10080 Winter	100	+40%	2/15 Summer			
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JNP Group		Page 16
3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 4 South West Network	
Date 10/02/2020 13:41 File C85228 SW Network 4 wit...	Designed by IS Checked by AMc	
Micro Drainage	Network 2018.1.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for JNP Surface Water Network 4 NEW with Roundabout design

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Overflow Cap. (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	400	5.908	-0.086	0.000	0.84	71.7	OK	
1.001	401	5.687	0.024	0.000	0.00	2.5	SURCHARGED	
1.002	402	5.687	0.245	0.000	0.00	11.8	SURCHARGED	
2.000	404	5.687	0.055	0.000	0.00	0.1	SURCHARGED	
2.001	405	5.687	0.310	0.000	0.02	1.1	SURCHARGED	
1.003	403	5.687	0.360	0.000	0.00	16.0	SURCHARGED	
3.000	407	5.687	0.197	0.000	0.00	0.8	SURCHARGED	
3.001	408	5.687	0.440	0.000	0.00	12.9	SURCHARGED	
4.000	409	5.687	0.210	0.000	0.00	0.8	SURCHARGED	
4.001	410	5.687	0.384	0.000	0.00	9.5	SURCHARGED	
1.004	406	5.687	0.529	0.000	0.00	15.6	SURCHARGED	
5.000	412	5.687	-0.018	0.000	0.00	0.4	OK	
5.001	413	5.687	0.368	0.000	0.02	3.0	SURCHARGED	
5.002	414	5.687	0.464	0.000	0.00	3.0	SURCHARGED	
1.005	411	5.687	1.483	0.000	0.14	2.0	SURCHARGED	

JNP Group		Page 1
3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield South East Parcels Surface Water Network 5	
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Micro Drainage	Network 2017.1.2	

Existing Network Details for JNP Surface Water Network 5 - South East
Parcel Rev A 2019.06.25

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	k (mm)	HYD SECT	DIA (mm)	Section Type
1.000	41.323	0.207	200.0	0.152	5.00	0.600	o	300	Pipe/Conduit
1.001	73.433	0.245	300.0	0.145	0.00	0.600	o	1350	Pipe/Conduit
1.002	58.046	0.193	300.0	0.554	0.00	0.600	o	1350	Pipe/Conduit
2.000	58.046	0.193	300.0	0.000	5.00	0.600	o	1350	Pipe/Conduit
2.001	4.000	0.013	300.0	0.000	0.00	0.600	o	1350	Pipe/Conduit
1.003	18.915	0.063	300.0	0.000	0.00	0.600	o	1350	Pipe/Conduit
3.000	43.851	0.146	300.0	0.040	5.00	0.600	o	300	Pipe/Conduit
3.001	66.336	0.221	300.0	0.136	0.00	0.600	o	450	Pipe/Conduit
3.002	47.139	0.157	300.0	0.245	0.00	0.600	o	1200	Pipe/Conduit
1.004	15.754	0.105	150.0	0.000	0.00	0.600	o	150	Pipe/Conduit
1.005	30.624	0.204	150.1	0.000	0.00	0.600	o	150	Pipe/Conduit
1.006	32.906	0.219	150.3	0.000	0.00	0.600	o	150	Pipe/Conduit

PN	US/MH Name	US/CL (m)	US/IL (m)	US C.Depth (m)	DS/CL (m)	DS/IL (m)	DS C.Depth (m)	Ctrl	US/MH (mm)
1.000	400	7.616	5.686	1.630	6.734	5.479	0.955		1200
1.001	401	6.734	4.429	0.955	6.450	4.184	0.916		2400
1.002	402	6.450	4.184	0.916	6.260	3.991	0.919		2400
2.000	404	6.450	4.197	0.903	6.260	4.004	0.906		2400
2.001	405	6.260	4.004	0.906	6.260	3.991	0.919		2400
1.003	403	6.260	3.991	0.919	6.200	3.928	0.922		2400
3.000	407	7.013	5.502	1.211	6.809	5.356	1.153		1200
3.001	408	6.809	5.206	1.153	6.500	4.985	1.065		1500
3.002	409	6.500	4.235	1.065	6.200	4.078	0.922		2100
1.004	406	6.200	3.928	2.122	4.700	3.823	0.727	Hydro-Brake®	2400
1.005	410	4.700	3.823	0.727	4.690	3.619	0.921		1200
1.006	411	4.690	3.619	0.921	4.600	3.400	1.050		1200

JNP Group		Page 2
3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield South East Parcels Surface Water Network 5	
Date 11/07/2019	Designed by IS	
File C85228 Surface Water Ne...	Checked by AM	
Micro Drainage	Network 2017.1.2	

Manhole Schedules for JNP Surface Water Network 5 - South East Parcel Rev A
2019.06.25

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
400	7.616	1.930	Open Manhole	1200	1.000	5.686	300				
401	6.734	2.305	Open Manhole	2400	1.001	4.429	1350	1.000	5.479	300	
402	6.450	2.266	Open Manhole	2400	1.002	4.184	1350	1.001	4.184	1350	
404	6.450	2.253	Open Manhole	2400	2.000	4.197	1350				
405	6.260	2.256	Open Manhole	2400	2.001	4.004	1350	2.000	4.004	1350	
403	6.260	2.269	Open Manhole	2400	1.003	3.991	1350	1.002	3.991	1350	
								2.001	3.991	1350	
407	7.013	1.511	Open Manhole	1200	3.000	5.502	300				
408	6.809	1.603	Open Manhole	1500	3.001	5.206	450	3.000	5.356	300	
409	6.500	2.265	Open Manhole	2100	3.002	4.235	1200	3.001	4.985	450	
406	6.200	2.272	Open Manhole	2400	1.004	3.928	150	1.003	3.928	1350	
								3.002	4.078	1200	1200
410	4.700	0.877	Open Manhole	1200	1.005	3.823	150	1.004	3.823	150	
411	4.690	1.071	Open Manhole	1200	1.006	3.619	150	1.005	3.619	150	
412	4.600	1.200	Open Manhole	1200		OUTFALL		1.006	3.400	150	

JNP Group	Page 3
3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield South East Parcels Surface Water Network 5
Date 11/07/2019 File C85228 Surface Water Ne...	Designed by IS Checked by AM
Micro Drainage	Network 2017.1.2



**PIPELINE SCHEDULES for JNP Surface Water Network 5 - South East Parcel Rev
A 2019.06.25**

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	300	400	7.616	5.686	1.630	Open Manhole	1200
1.001	o	1350	401	6.734	4.429	0.955	Open Manhole	2400
1.002	o	1350	402	6.450	4.184	0.916	Open Manhole	2400
2.000	o	1350	404	6.450	4.197	0.903	Open Manhole	2400
2.001	o	1350	405	6.260	4.004	0.906	Open Manhole	2400
1.003	o	1350	403	6.260	3.991	0.919	Open Manhole	2400
3.000	o	300	407	7.013	5.502	1.211	Open Manhole	1200
3.001	o	450	408	6.809	5.206	1.153	Open Manhole	1500
3.002	o	1200	409	6.500	4.235	1.065	Open Manhole	2100
1.004	o	150	406	6.200	3.928	2.122	Open Manhole	2400
1.005	o	150	410	4.700	3.823	0.727	Open Manhole	1200
1.006	o	150	411	4.690	3.619	0.921	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	41.323	200.0	401	6.734	5.479	0.955	Open Manhole	2400
1.001	73.433	300.0	402	6.450	4.184	0.916	Open Manhole	2400
1.002	58.046	300.0	403	6.260	3.991	0.919	Open Manhole	2400
2.000	58.046	300.0	405	6.260	4.004	0.906	Open Manhole	2400
2.001	4.000	300.0	403	6.260	3.991	0.919	Open Manhole	2400
1.003	18.915	300.0	406	6.200	3.928	0.922	Open Manhole	2400
3.000	43.851	300.0	408	6.809	5.356	1.153	Open Manhole	1500
3.001	66.336	300.0	409	6.500	4.985	1.065	Open Manhole	2100
3.002	47.139	300.0	406	6.200	4.078	0.922	Open Manhole	2400
1.004	15.754	150.0	410	4.700	3.823	0.727	Open Manhole	1200
1.005	30.624	150.1	411	4.690	3.619	0.921	Open Manhole	1200
1.006	32.906	150.3	412	4.600	3.400	1.050	Open Manhole	1200

**Free Flowing Outfall Details for JNP Surface Water Network 5 - South East
Parcel Rev A 2019.06.25**

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield South East Parcels Surface Water Network 5	
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File C85228 Surface Water Ne...	Checked by AM	
Micro Drainage	Network 2017.1.2	

Free Flowing Outfall Details for JNP Surface Water Network 5 - South East
Parcel Rev A 2019.06.25

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.006	412	4.600	3.400	3.400	1200	0

Simulation Criteria for JNP Surface Water Network 5 - South East Parcel Rev
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Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /ha Storage	0.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FEH
Return Period (years)	2
FEH Rainfall Version	2013
Site Location	GB 500450 103100 TQ 00450 03100
Data Type	Catchment
Summer Storms	Yes
Winter Storms	No
Cv (Summer)	0.750
Cv (Winter)	0.840
Storm Duration (mins)	30

JNP Group		Page 5
3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield South East Parcels Surface Water Network 5	
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Online Controls for JNP Surface Water Network 5 - South East Parcel Rev A
2019.06.25

Hydro-Brake® Optimum Manhole: 406, DS/PN: 1.004, Volume (m³): 84.7

Unit Reference	MD-SHE-0060-2000-1598-2000
Design Head (m)	1.598
Design Flow (l/s)	2.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	60
Invert Level (m)	3.928
Minimum Outlet Pipe Diameter (mm)	75
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.598	2.0
Flush-Flo™	0.262	1.5
Kick-Flo®	0.536	1.2
Mean Flow over Head Range	-	1.5

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.3	1.200	1.8	3.000	2.7	7.000	4.0
0.200	1.5	1.400	1.9	3.500	2.9	7.500	4.1
0.300	1.5	1.600	2.0	4.000	3.0	8.000	4.2
0.400	1.5	1.800	2.1	4.500	3.2	8.500	4.3
0.500	1.3	2.000	2.2	5.000	3.4	9.000	4.4
0.600	1.3	2.200	2.3	5.500	3.5	9.500	4.6
0.800	1.5	2.400	2.4	6.000	3.7		
1.000	1.6	2.600	2.5	6.500	3.8		

JNP Group		Page 6												
3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield South East Parcels Surface Water Network 5													
Date 11/07/2019 File C85228 Surface Water Ne...	Designed by IS Checked by AM													
Micro Drainage Network 2017.1.2														
<u>Storage Structures for JNP Surface Water Network 5 - South East Parcel Rev A 2019.06.25</u>														
<u>Tank or Pond Manhole: 406, DS/PN: 1.004</u> Invert Level (m) 3.950 <table border="1"> <thead> <tr> <th>Depth (m)</th> <th>Area (m²)</th> <th>Depth (m)</th> <th>Area (m²)</th> <th>Depth (m)</th> <th>Area (m²)</th> </tr> </thead> <tbody> <tr> <td>0.000</td> <td>500.0</td> <td>1.200</td> <td>500.0</td> <td>1.201</td> <td>0.0</td> </tr> </tbody> </table>			Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	0.000	500.0	1.200	500.0	1.201	0.0
Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)									
0.000	500.0	1.200	500.0	1.201	0.0									
©1982-2017 XP Solutions														

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Micro Drainage	Network 2017.1.2	

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 5 - South East Parcel Rev A 2019.06.25

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 0.000
Hot Start Level (mm) 0 Inlet Coefficient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 1
Number of Online Controls 1 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH
FEH Rainfall Version 2013
Site Location GB 500450 103100 TQ 00450 03100
Data Type Catchment
Cv (Summer) 0.750
Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480
Return Period(s) (years) 2, 30, 100
Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	400	15 Winter	2	+0%	100/15 Summer				5.811
1.001	401	15 Winter	2	+0%					4.550
1.002	402	480 Winter	2	+0%					4.448
2.000	404	480 Winter	2	+0%					4.448
2.001	405	480 Winter	2	+0%	100/480 Winter				4.448
1.003	403	480 Winter	2	+0%	100/480 Winter				4.449
3.000	407	15 Winter	2	+0%					5.570
3.001	408	15 Winter	2	+0%					5.324
3.002	409	480 Winter	2	+0%	100/480 Winter				4.449
1.004	406	480 Winter	2	+0%	2/15 Summer				4.449
1.005	410	60 Winter	2	+0%					3.856
1.006	411	60 Winter	2	+0%					3.652

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield South East Parcels Surface Water Network 5	
Date 11/07/2019	Designed by IS	
File C85228 Surface Water Ne...	Checked by AM	
Micro Drainage		Network 2017.1.2

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 5 - South East Parcel Rev A 2019.06.25

PN	US/MH Name	Surcharged Flooded		Flow / Overflow Cap. (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
		Depth (m)	Volume (m³)				
1.000	400	-0.175	0.000	0.36	26.0	OK	
1.001	401	-1.229	0.000	0.02	46.0	OK	
1.002	402	-1.086	0.000	0.01	19.5	OK	
2.000	404	-1.099	0.000	0.00	1.1	OK	
2.001	405	-0.906	0.000	0.00	3.1	OK	
1.003	403	-0.892	0.000	0.01	16.4	OK	
3.000	407	-0.232	0.000	0.12	6.9	OK	
3.001	408	-0.332	0.000	0.15	26.5	OK	
3.002	409	-0.986	0.000	0.01	9.8	OK	
1.004	406	0.371	0.000	0.11	1.5	SURCHARGED	
1.005	410	-0.117	0.000	0.11	1.5	OK	
1.006	411	-0.117	0.000	0.11	1.5	OK	

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield South East Parcels Surface Water Network 5	
Date 11/07/2019	Designed by IS	
File C85228 Surface Water Ne...	Checked by AM	
Micro Drainage	Network 2017.1.2	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 5 - South East Parcel Rev A 2019.06.25

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
 Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 0.000
 Hot Start Level (mm) 0 Inlet Coefficient 0.800
 Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
 Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 1
 Number of Online Controls 1 Number of Time/Area Diagrams 0
 Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH
 FEH Rainfall Version 2013
 Site Location GB 500450 103100 TQ 00450 03100
 Data Type Catchment
 Cv (Summer) 0.750
 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
 Analysis Timestep Fine Inertia Status OFF
 DTS Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480
 Return Period(s) (years) 2, 30, 100
 Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	400	15 Winter	30	+0%	100/15 Summer				5.886
1.001	401	480 Winter	30	+0%					4.755
1.002	402	480 Winter	30	+0%					4.755
2.000	404	480 Winter	30	+0%					4.754
2.001	405	480 Winter	30	+0%	100/480 Winter				4.755
1.003	403	480 Winter	30	+0%	100/480 Winter				4.755
3.000	407	15 Winter	30	+0%					5.603
3.001	408	15 Winter	30	+0%					5.402
3.002	409	480 Winter	30	+0%	100/480 Winter				4.755
1.004	406	480 Winter	30	+0%	2/15 Summer				4.755
1.005	410	360 Winter	30	+0%					3.856
1.006	411	360 Winter	30	+0%					3.652

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield South East Parcels Surface Water Network 5	
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Micro Drainage		Network 2017.1.2

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 5 - South East Parcel Rev A 2019.06.25

PN	US/MH Name	Surcharged Flooded		Flow / Overflow Cap. (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
		Depth (m)	Volume (m³)				
1.000	400	-0.100	0.000	0.77	55.9	OK	
1.001	401	-1.024	0.000	0.00	12.0	OK	
1.002	402	-0.779	0.000	0.01	32.0	OK	
2.000	404	-0.793	0.000	0.00	0.6	OK	
2.001	405	-0.599	0.000	0.01	11.0	OK	
1.003	403	-0.586	0.000	0.01	23.6	OK	
3.000	407	-0.199	0.000	0.24	14.4	OK	
3.001	408	-0.254	0.000	0.39	67.7	OK	
3.002	409	-0.680	0.000	0.01	16.9	OK	
1.004	406	0.677	0.000	0.11	1.5	SURCHARGED	
1.005	410	-0.117	0.000	0.11	1.5	OK	
1.006	411	-0.117	0.000	0.11	1.5	OK	

JNP Group				Page 11					
3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP				Ford Airfield South East Parcels Surface Water Network 5					
Date 11/07/2019				Designed by IS					
File C85228 Surface Water Ne...				Checked by AM					
Micro Drainage				Network 2017.1.2					
<u>100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for JNP Surface Water Network 5 - South East Parcel Rev A 2019.06.25</u>									
Simulation Criteria									
Areal Reduction Factor 1.000				Additional Flow - % of Total Flow 0.000					
Hot Start (mins) 0				MADD Factor * 10m³/ha Storage 0.000					
Hot Start Level (mm) 0				Inlet Coefficient 0.800					
Manhole Headloss Coeff (Global) 0.500				Flow per Person per Day (l/per/day) 0.000					
Foul Sewage per hectare (l/s) 0.000									
Number of Input Hydrographs 0 Number of Storage Structures 1									
Number of Online Controls 1 Number of Time/Area Diagrams 0									
Number of Offline Controls 0 Number of Real Time Controls 0									
Synthetic Rainfall Details									
Rainfall Model				FEH					
FEH Rainfall Version				2013					
Site Location GB 500450 103100 TQ 00450 03100									
Data Type				Catchment					
Cv (Summer)				0.750					
Cv (Winter)				0.840					
Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF									
Analysis Timestep Fine Inertia Status OFF									
DTS Status ON									
Profile(s) Summer and Winter									
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480									
Return Period(s) (years) 2, 30, 100									
Climate Change (%) 0, 0, 40									
Water									
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)
1.000	400	15 Winter	100	+40%	100/15 Summer				6.152
1.001	401	480 Winter	100	+40%					5.533
1.002	402	480 Winter	100	+40%					5.533
2.000	404	480 Winter	100	+40%					5.532
2.001	405	480 Winter	100	+40%	100/480 Winter				5.532
1.003	403	480 Winter	100	+40%	100/480 Winter				5.532
3.000	407	15 Winter	100	+40%					5.641
3.001	408	480 Winter	100	+40%					5.532
3.002	409	480 Winter	100	+40%	100/480 Winter				5.532
1.004	406	480 Winter	100	+40%	2/15 Summer				5.532
1.005	410	480 Winter	100	+40%					3.861
1.006	411	480 Winter	100	+40%					3.657
©1982-2017 XP Solutions									

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield South East Parcels Surface Water Network 5	
Date 11/07/2019	Designed by IS	
File C85228 Surface Water Ne...	Checked by AM	
Micro Drainage	Network 2017.1.2	

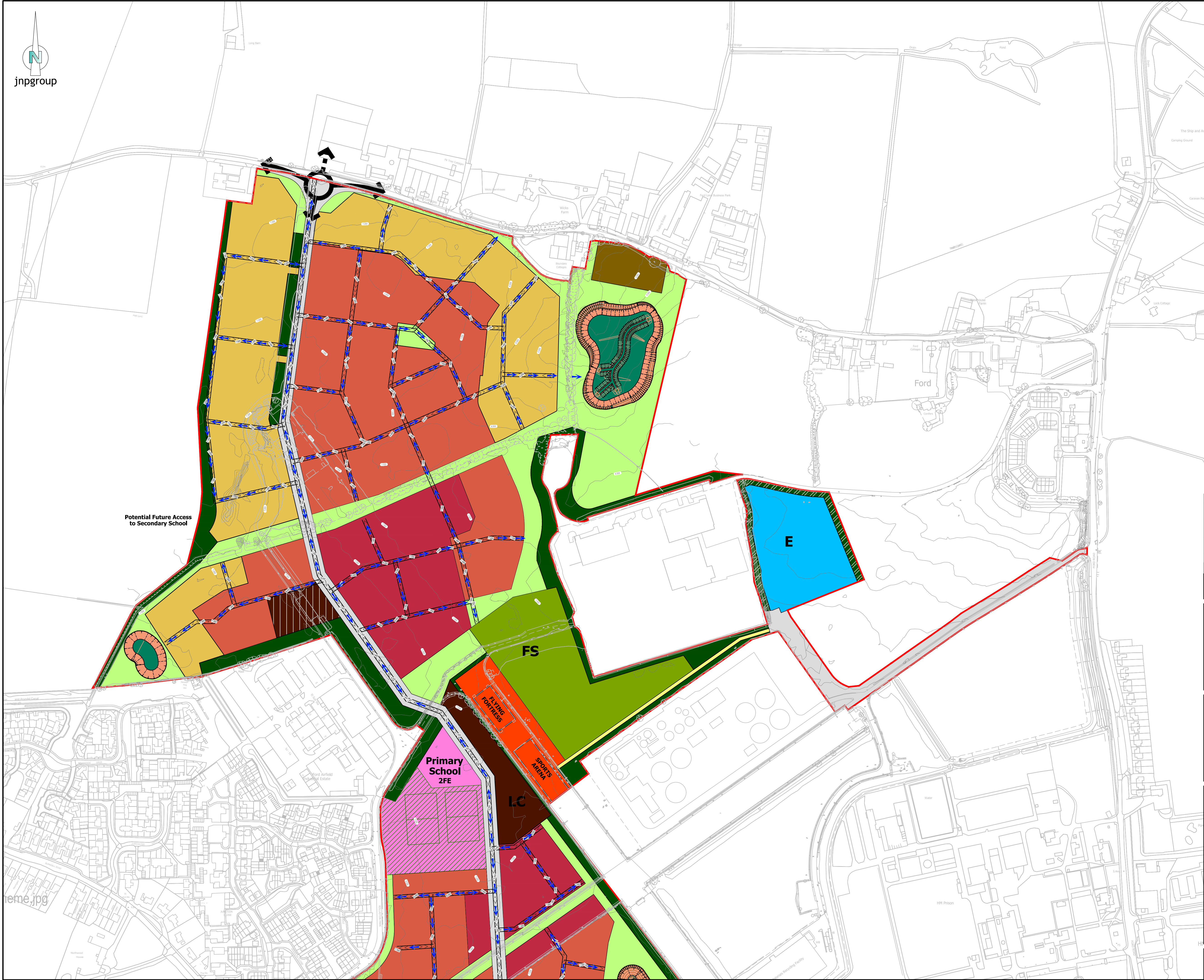
100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for JNP Surface Water Network 5 - South East Parcel Rev A 2019.06.25

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	400	0.166	0.000	1.35		98.7	SURCHARGED	
1.001	401	-0.246	0.000	0.01		20.4	OK	
1.002	402	-0.001	0.000	0.02		50.3	OK	
2.000	404	-0.015	0.000	0.00		0.2	OK	
2.001	405	0.178	0.000	0.00		1.2	SURCHARGED	
1.003	403	0.191	0.000	0.02		33.4	SURCHARGED	
3.000	407	-0.161	0.000	0.42		25.1	OK	
3.001	408	-0.124	0.000	0.07		12.4	OK	
3.002	409	0.097	0.000	0.02		29.3	SURCHARGED	
1.004	406	1.454	0.000	0.15		2.0	SURCHARGED	
1.005	410	-0.112	0.000	0.14		2.0	OK	
1.006	411	-0.112	0.000	0.14		2.0	OK	

Appendix K

Flood Exceedance Plan





- Notes:-
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- Legend
- Site Boundary
 - Route of proposed flood exceedance
 - Existing ground contour
 - Proposed road contours

- Flood exceedance strategy notes:
- The finished ground levels for the development will be designed so that overland water flows towards the channelised road network.
 - The road levels have been designed to ensure there are no low points of significant depth which will fill with water and flood properties.
 - The road levels rise and fall but always allow water to overtop the crowns in the carriageway and flow to green spaces.
 - Generally the depth of water in the low points along the carriageway will not be greater than 300mm.

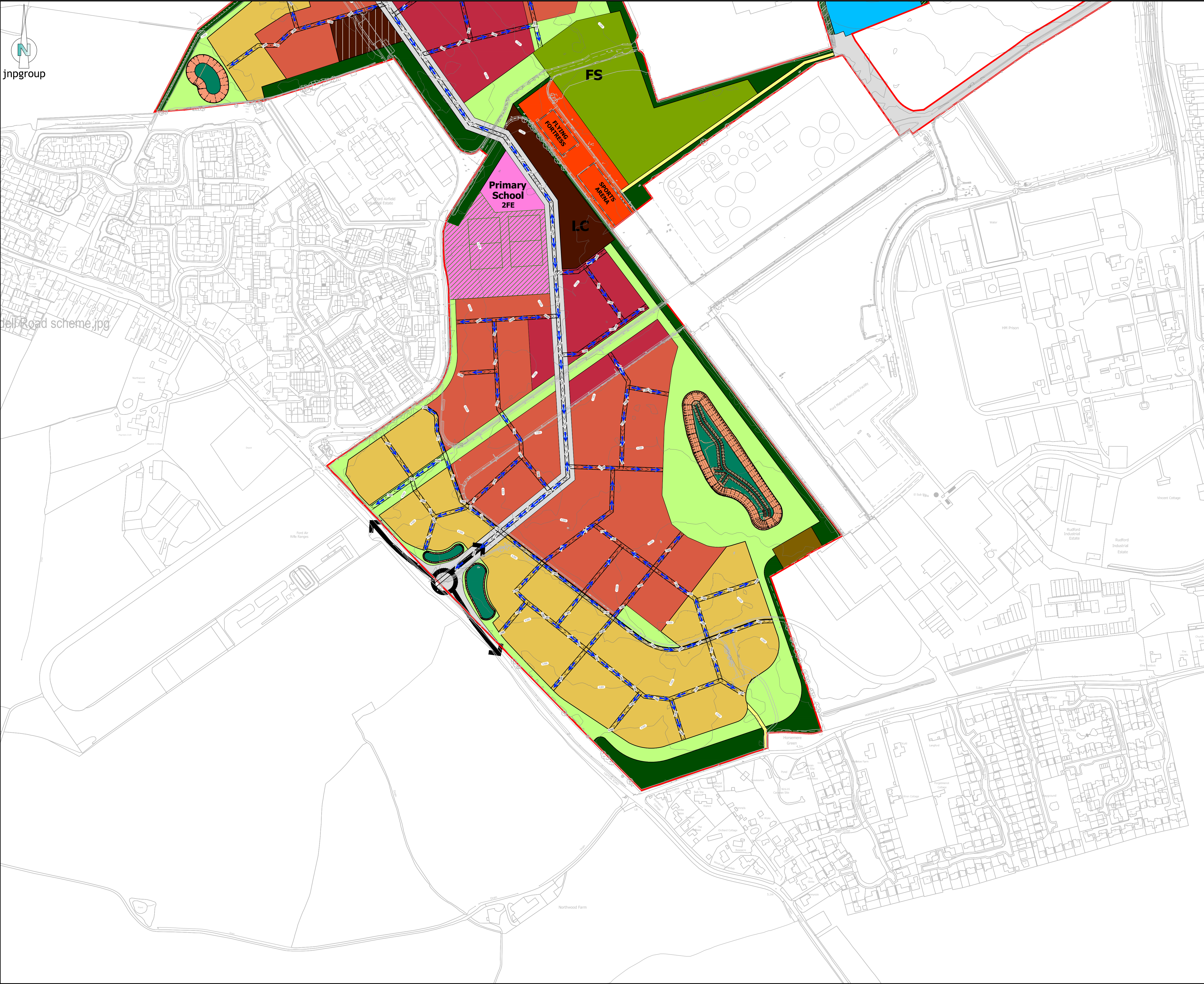
Rev.	Date	Amendment	By	Chk.
E	10.02.20	Basins revised due to groundwater monitoring results	IS	AM
D	19.12.19	Site boundary revised	IS	AM
C	24.10.19	Land use plan updated	IS	AM
B	11.07.19	Flow exceedance arrows revised to suit updated site layout	IS	AM
A	09.05.19	Basins revised	IS	AM
Rev.	Date	Amendment	By	Chk.
Status	Indicative			



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Client	Wates Redrow
Job	Ford Airfield
Title	Indicative Flood Exceedance Plan Sheet 1 of 2
Scale	1:2500
Drawn by	IS
Checked by	
Approved by	
Drawing No.	C85228-D102
Rev.	E





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Rev.	Date	Amendment	By	Chk.
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A	09.05.19	Basins revised	IS	AM
Rev.	Date	Amendment	By	Chk.
Status				
Indicative				



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Client	Wates Redrow
Job	Ford Airfield
Title	Indicative Flood Exceedance Plan Sheet 2 of 2
Scale	1:2500
Drawn by	IS
Checked by	
Approved by	
Date	February 2019
BM TRADA	
UKAS	
HAS	
Constructionline	
Accredited Contractor	
Supplier No. 000024	

Drawing No.	C85228-D103	Rev.	E
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